



CITY OF RICHMOND
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WASTEWATER TREATMENT

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PRO

September 1 2009

Virginia Kelly
Permit Writer
Virginia Department of Environmental Quality
Piedmont Regional Office
4949A Cox Road
Glen Allen, Virginia, 23060-6295

Subject: City of Richmond, Virginia
Richmond WWTP VPDES Permit VA0063177
VPDES Permit Reissuance Application

Dear Ms. Kelly

City of Richmond WWTP is supplying one original and one copy of our VPDES Permit reissuance application. The following plant upgrades were completed during the last permit cycle.

- ✦ Rehab. - 4 primary and 6 secondary tanks
- ✦ Installation of 3 new variable speed drives – Main Pump Station
- ✦ Rehab – Supplemental Pump Station – 2 new variable speed drives and electric motors
- ✦ Rehab – Chlorine and Sulfur Dioxide railyard – feed lines, chemical detectors, and cameras
- ✦ Rehab & Clean 5 primary anaerobic digesters
- ✦ Install new computerized control panels for 5 Dewatering & 4 Thickening Centrifuges
- ✦ See Supplement 2B-1 for a list of plant upgrade projects ongoing or starting in the near future.

If you have any questions or comments please feel free to contact me at 646-8903

Clair Watson, Supt. of Plant Operations

**CITY OF RICHMOND
DEPARTMENT OF PUBLIC UTILITIES
WASTEWATER TREATMENT PLANT**



CITY OF RICHMOND

DEPARTMENT OF PUBLIC UTILITIES



VPDES PERMIT #VA 0063177

PERMIT REISSUANCE APPLICATION

September 1, 2009

Richmond WWTP
VPDES Permit #VA0063177
Outfall No. 001

VPDES Permit Reissuance Application

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Richmond WWTP
VPDES Permit #VA0063177
Outfall No. 001
Permit Reissuance Application

GENERAL

**DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER DIVISION
PERMIT APPLICATION FEE FORM
EFFECTIVE JANUARY 1, 2008**

INSTRUCTIONS

Applicants for individual Virginia Pollutant Discharge Elimination System (VPDES), Virginia Pollution Abatement (VPA), Virginia Water Protection (VWP), Surface Water Withdrawal (SWW), and Ground Water Withdrawal (GWW) Permits are required to pay permit application fees, except farming operations engaged in production for market. Fees are also required for registration for coverage under General Permits except for the general permits for sewage treatment systems with discharges of 1,000 gallons per day (GPD) or less and for Corrective Action Plans for leaking underground storage tanks. Except for VWP permits, fees must be paid when applications for permit issuance, reissuance* or modification are submitted. Applicants for VWP permits will be notified by the DEQ of the fee due. Applications will be considered incomplete if the proper fee is not paid and will not be processed until the fee is received. (* - the reissuance fee does not apply to VPDES and VPA permits - see the fee schedule included with this form for details.)

The permit fee schedule is included with this form. Fees for permit issuance or reissuance and for permit modification are included. Once you have determined the fee for the type of application you are submitting, complete this form. The original copy of the form and your check or money order payable to "Treasurer of Virginia" should be mailed to:

Department of Environmental Quality
Receipts Control
P.O. Box 1104
Richmond, VA 23218

A copy of the form and a copy of your check or money order should accompany the permit application. You should retain a copy for your records. Please direct any questions regarding this form or fee payment to the DEQ Office to which you are submitting your application.

APPLICANT NAME: Christopher Beschler **SSN/FIN:** _____

ADDRESS: Department of Public Utilities **DAYTIME PHONE:** (804) 646 - 5200
730 E. Broad Street **Area Code**
Richmond Va 23219

FACILITY/ACTIVITY NAME: Richmond Wastewater Treatment Facility

LOCATION: 1400 Brander Street Richmond, Va 23224

TYPE OF PERMIT APPLIED FOR
(from Fee Schedule): VPDES Municipal Major

TYPE OF ACTION: ☐ New Issuance ☒ Reissuance ☐ Modification

AMOUNT OF FEE SUBMITTED
(from Fee Schedule): Annual Permit Maintenance Fee instead of reapplication Fee

EXISTING PERMIT NUMBER (if applicable): VA0063177

DEQ OFFICE TO WHICH APPLICATION SUBMITTED (check one)

<input type="checkbox"/> Abingdon/SWRO	<input type="checkbox"/> Harrisonburg/VRO	<input type="checkbox"/> Woodbridge/NVRO	<input type="checkbox"/> Lynchburg/BRRO-L
<input checked="" type="checkbox"/> Richmond/PRO	<input type="checkbox"/> Richmond/Headquarters	<input type="checkbox"/> Roanoke/BRRO-R	<input type="checkbox"/> Virginia Beach/TRO

FOR DEQ USE ONLY

Date: _____
DC #: _____

Original Form and Check - DEQ Receipts Control, Richmond
Copy of Form and Copy of Check - DEQ Regional Office or Permit
Program Office

FEE SCHEDULES

A. VPDES and VPA Permits. Applications for issuance of new individual VPDES or VPA permits, and for permittee initiated major modifications that occur (and become effective) before the stated permit expiration date. (Flows listed are facility "design" flows. Land application rates listed are facility "design" rates.) [NOTE: VPDES and VPA permittees pay an Annual Permit Maintenance Fee (APMF) instead of a reapplication fee. The permittee is billed separately by DEQ for the APMF.]

TYPE OF PERMIT	ISSUANCE	MODIFICATION	LAND APP MOD*
VPDES Industrial Major	\$24,000	\$12,000	
VPDES Municipal Major	\$21,300	\$10,650	\$1,000
VPDES Industrial Minor / No Standard Limits	\$10,200	\$5,150	
VPDES Industrial Minor / Standard Limits	\$3,300	\$3,300	
VPDES Industrial Stormwater	\$7,200	\$3,600	
VPDES Municipal Minor / Greater Than 100,000 GPD	\$7,500	\$3,750	\$1,000
VPDES Municipal Minor / 10,001 GPD - 100,000 GPD	\$6,000	\$3,000	\$1,000
VPDES Municipal Minor / 1,001 GPD - 10,000 GPD	\$5,400	\$2,700	\$1,000
VPDES Municipal Minor / 1,000 GPD or Less	\$2,000	\$1,000	
VPDES Municipal Minor / 1,000 GPD or Less that includes authorization for land application or land disposal of sewage sludge	\$5,000	\$1,000	\$1,000
VPA Industrial Wastewater Operation / Land Application of 10 or More Inches Per Year	\$15,000	\$7,500	
VPA Industrial Wastewater Operation / Land Application of Less Than 10 Inches Per Year	\$10,500	\$5,250	
VPA Industrial Sludge Operation	\$7,500	\$3,750	
VPA Municipal Wastewater Operation	\$13,500	\$6,750	
VPA Municipal Sludge Operation	\$5,000	\$1,000	
All other VPA operations not specified above	\$750	\$375	

* The fee for modification of a VPDES permit due to changes relating to authorization for land application or land disposal of sewage sludge shall be \$1,000.

B. Virginia Water Protection (VWP) Permits. Applications for issuance of new individual, and reissuance or major modification of existing individual VWP permits. Only one permit application fee will be assessed per application; for a permit application involving more than one of the operations described below, the governing fee shall be based upon the primary purpose of the proposed activity. (Withdrawal amounts shown are maximum daily withdrawals.)

TYPE OF PERMIT	ISSUANCE/REISSUANCE	MODIFICATION
VWP Individual / Surface Water Impacts (Wetlands, Streams and/or Open Water)	\$2,400 plus \$220 for each 4,356 sq. ft. (1/10 acre) (or portion thereof) of incremental impact over 87,120 sq. ft. (two acres) (\$60,000 maximum)	\$1,200 plus \$110 for each 4,356 sq. ft. (1/10 acre) (or portion thereof) of incremental impact over 87,120 sq. ft. (two acres) (\$30,000 maximum)
VWP Individual/Minimum Instream Flow - Withdrawals equal to or greater than 3,000,000 gallons on any day	\$25,000	\$5,000
VWP Individual / Minimum Instream Flow - Withdrawals between 2,000,000 and 2,999,999 gallons on any day	\$20,000	\$5,000
VWP Individual / Minimum Instream Flow - Withdrawals between 1,000,000 and 1,999,999 gallons on any day	\$15,000	\$5,000
VWP Individual / Minimum Instream Flow - Withdrawals < 1,000,000 gallons on any day that do not otherwise qualify for a general VWP permit for water withdrawals	\$10,000	\$5,000
VWP Individual / Reservoir - Major	\$35,000	\$12,500
VWP Individual / Reservoir - Minor	\$25,000	\$12,500
VWP Individual/Nonmetallic Mineral Mining	\$2,400 plus \$220 for each 4,356 sq. ft. (1/10 acre) (or portion thereof) of incremental impact over 87,120 sq. ft. (two acres) (\$7,500 maximum)	\$1,200 plus \$110 for each 4,356 sq. ft. (1/10 acre) (or portion thereof) of incremental impact over 87,120 sq. ft. (two acres) (\$3,750 maximum)

C. Surface Water Withdrawal (SWW) and Ground Water Withdrawal (GWW) Permits. Applications for issuance of new individual, and reissuance or major modification of existing individual SWW permits or GWW permits.

TYPE OF PERMIT	ISSUANCE/REISSUANCE	MODIFICATION
Surface Water Withdrawal	\$12,000	\$6,000
Ground Water Withdrawal / Initial Permit for an Existing Withdrawal Based Solely on Historic Withdrawals	\$1,200	\$600
Ground Water Withdrawal	\$6,000	\$3,000

D. Registration Statements (VPDES and VPA permits) or Applications (VWP permits) for General Permit Coverage.

- Except as specified in 2, 3, and 4 below, the fee for registration for coverage under a general permit is \$600.
- General VPDES Permit for Domestic Sewage Discharges of Less Than or Equal to 1,000 GPD (VAG40) = \$0.
General VPDES Permit Regulation for Discharges From Petroleum Contaminated Sites (VAG83) = \$0.
- VWP General Permit:

TYPE OF PERMIT	ISSUANCE
VWP General / Less Than 4,356 sq. ft. (1/10 acre) of Surface Water Impact (Wetlands, Streams and/or Open Water)	\$0
VWP General / 4,356 sq. ft. to 21,780 sq. ft. (1/10 acre to 1/2 acre) of Surface Water Impact (Wetlands, Streams and/or Open Water)	\$600
VWP General / 21,781 sq. ft. to 43,560 sq. ft. (greater than 1/2 acre to one acre) of Surface Water Impact (Wetlands, Streams and/or Open Water)	\$1,200
VWP General / 43,561 sq. ft. to 87,120 sq. ft. (greater than one acre to two acres) of Surface Water Impact (Wetlands, Streams and/or Open Water)	\$1,200 plus \$120 for each 4,356 sq. ft. (1/10 acre) (or portion thereof) of incremental impact over 43,560 sq. ft. (one acre) (\$2,400 maximum)
VWP General / Minimum Instream Flow / Reservoir - Water withdrawals and/or pond construction	\$2,400

- General VPDES Permit for Industrial Activity Storm Water Discharges (VAR05) = \$500.

Richmond WWTP
VPDES Permit #VA0063177
Outfall No. 001
Permit Reissuance Application

FORM 2A:
APPLICATION FOR VPDES PERMIT

Richmond WWTP
VPDES Permit #VA0063177
Outfall No. 001
Permit Reissuance Application

FORM 2A - PART A:
BASIC APPLICATION INFORMATION

RICHMOND WWTP 0063177

FORM
2A
NPDES**NPDES FORM 2A APPLICATION OVERVIEW****APPLICATION OVERVIEW**

Form 2A has been developed in a modular format and consists of a "Basic Application Information" packet and a "Supplemental Application Information" packet. The Basic Application Information packet is divided into two parts. All applicants must complete Parts A and C. Applicants with a design flow greater than or equal to 0.1 mgd must also complete Part B. Some applicants must also complete the Supplemental Application Information packet. The following items explain which parts of Form 2A you must complete.

BASIC APPLICATION INFORMATION:

- A. **Basic Application Information for all Applicants.** All applicants must complete questions A.1 through A.8. A treatment works that discharges effluent to surface waters of the United States must also answer questions A.9 through A.12.
- B. **Additional Application Information for Applicants with a Design Flow \geq 0.1 mgd.** All treatment works that have design flows greater than or equal to 0.1 million gallons per day must complete questions B.1 through B.6.
- C. **Certification.** All applicants must complete Part C (Certification).

SUPPLEMENTAL APPLICATION INFORMATION:

- D. **Expanded Effluent Testing Data.** A treatment works that discharges effluent to surface waters of the United States and meets one or more of the following criteria must complete Part D (Expanded Effluent Testing Data):
 - 1. Has a design flow rate greater than or equal to 1 mgd,
 - 2. Is required to have a pretreatment program (or has one in place), or
 - 3. Is otherwise required by the permitting authority to provide the information.
- E. **Toxicity Testing Data.** A treatment works that meets one or more of the following criteria must complete Part E (Toxicity Testing Data):
 - 1. Has a design flow rate greater than or equal to 1 mgd,
 - 2. Is required to have a pretreatment program (or has one in place), or
 - 3. Is otherwise required by the permitting authority to submit results of toxicity testing.
- F. **Industrial User Discharges and RCRA/CERCLA Wastes.** A treatment works that accepts process wastewater from any significant industrial users (SIUs) or receives RCRA or CERCLA wastes must complete Part F (Industrial User Discharges and RCRA/CERCLA Wastes). SIUs are defined as:
 - 1. All industrial users subject to Categorical Pretreatment Standards under 40 Code of Federal Regulations (CFR) 403.6 and 40 CFR Chapter I, Subchapter N (see instructions); and
 - 2. Any other industrial user that:
 - a. Discharges an average of 25,000 gallons per day or more of process wastewater to the treatment works (with certain exclusions); or
 - b. Contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the treatment plant; or
 - c. Is designated as an SIU by the control authority.
- G. **Combined Sewer Systems.** A treatment works that has a combined sewer system must complete Part G (Combined Sewer Systems).

ALL APPLICANTS MUST COMPLETE PART C (CERTIFICATION)

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

Form Approved 1/14/99
OMB Number 2040-0086**BASIC APPLICATION INFORMATION****PART A. BASIC APPLICATION INFORMATION FOR ALL APPLICANTS**

All treatment works must complete questions A.1 through A.8 of this basic Application Information packet.

A.1. Facility Information.

Facility name City of Richmond Wastewater Treatment Plant
DEPARTMENT OF PUBLIC UTILITIES

Mailing Address 730 Broad Street
Richmond, Virginia 23219

Contact person Mr. Christopher Beschler

Title Director of Public Utilities

Telephone number (804) 646-5200

Facility Address 1400 Brander Street
(not P.O. Box) Richmond, VA 23224

A.2. Applicant Information. If the applicant is different from the above, provide the following:

Applicant name City of Richmond, VA

Mailing Address 1400 Brander Street
Richmond, VA 23224

Contact person Clair Watson

Title Supt. of Plant Operations

Telephone number (804) 646-8903

Is the applicant the owner or operator (or both) of the treatment works?

☒ owner ☒ operator

Indicate whether correspondence regarding this permit should be directed to the facility or the applicant.

☒ facility ☐ applicant**A.3. Existing Environmental Permits.** Provide the permit number of any existing environmental permits that have been issued to the treatment works (include state-issued permits).

NPDES	<u>VA0063177</u>	PSD	<u></u>
UIC	<u></u>	Other	<u></u>
RCRA	<u></u>	Other	<u></u>

A.4. Collection System Information. Provide information on municipalities and areas served by the facility. Provide the name and population of each entity and, if known, provide information on the type of collection system (combined vs. separate) and its ownership (municipal, private, etc.).

Name	Population Served	Type of Collection System	Ownership
<u>City of Richmond</u>	<u>200,123</u>	<u>Combined/Separate</u>	<u>Municipal</u>
<u>County of Henrico</u>	<u>3,551</u>	<u>Separate</u>	<u>Municipal</u>
<u>County of Chesterfield</u>	<u>11,100</u>	<u>Separate</u>	<u>Municipal</u>
<u>County of Goochland</u>	<u>500</u>	<u>Separate</u>	<u>Municipal</u>
Total population served	<u>215,274</u>		

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP 0063177

Form Approved 1/14/99
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A.5. Indian Country.

- a. Is the treatment works located in Indian Country?

☐ Yes ☒ No

- b. Does the treatment works discharge to a receiving water that is either in Indian Country or that is upstream from (and eventually flows through) Indian Country?

☐ Yes ☒ No

A.6. Flow. Indicate the design flow rate of the treatment plant (i.e., the wastewater flow rate that the plant was built to handle). Also provide the average daily flow rate and maximum daily flow rate for each of the last three years. Each year's data must be based on a 12-month time period with the 12th month of "this year" occurring no more than three months prior to this application submittal.

- a. Design flow rate
- 45.00
- mgd

	Two Years Ago	Last Year	This Year
b. Annual average daily flow rate	<u>59.30</u>	<u>47.40</u>	<u>50.10</u> mgd
c. Maximum daily flow rate	<u>84.00</u>	<u>83.70</u>	<u>83.90</u> mgd

A.7. Collection System. Indicate the type(s) of collection system(s) used by the treatment plant. Check all that apply. Also estimate the percent contribution (by miles) of each.

<input checked="" type="checkbox"/> Separate sanitary sewer	<u>67.00</u> %
<input checked="" type="checkbox"/> Combined storm and sanitary sewer	<u>33.00</u> %

A.8. Discharges and Other Disposal Methods.

- a. Does the treatment works discharge effluent to waters of the U.S.?

☒ Yes ☐ No

If yes, list how many of each of the following types of discharge points the treatment works uses:

i. Discharges of treated effluent	<u>1</u>
ii. Discharges of untreated or partially treated effluent	<u>0</u>
iii. Combined sewer overflow points	<u>29</u>
iv. Constructed emergency overflows (prior to the headworks)	<u>0</u>
v. Other	<u>0</u>

- b. Does the treatment works discharge effluent to basins, ponds, or other surface impoundments that do not have outlets for discharge to waters of the U.S.?

☐ Yes ☒ No

If yes, provide the following for each surface impoundment:

Location: _____

Annual average daily volume discharged to surface impoundment(s) _____ mgd

Is discharge _____ continuous or _____ intermittent?

- c. Does the treatment works land-apply treated wastewater?

☐ Yes ☒ No

If yes, provide the following for each land application site:

Location: _____

Number of acres: _____

Annual average daily volume applied to site: _____ Mgd

Is land application _____ continuous or _____ intermittent?

- d. Does the treatment works discharge or transport treated or untreated wastewater to another treatment works?

☐ Yes ☒ No

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP 0063177

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OMB Number 2040-0086

If yes, describe the mean(s) by which the wastewater from the treatment works is discharged or transported to the other treatment works (e.g., tank truck, pipe).

If transport is by a party other than the applicant, provide:

Transporter name: _____

Mailing Address: _____

Contact person: _____

Title: _____

Telephone number: _____

For each treatment works that receives this discharge, provide the following:

Name: _____

Mailing Address: _____

Contact person: _____

Title: _____

Telephone number: _____

If known, provide the NPDES permit number of the treatment works that receives this discharge. _____

Provide the average daily flow rate from the treatment works into the receiving facility. _____

mgd

- e. Does the treatment works discharge or dispose of its wastewater in a manner not included in A.8.a through A.8.d above (e.g., underground percolation, well injection)?

____ Yes

____ ☒ No

If yes, provide the following for each disposal method:

Description of method (including location and size of site(s) if applicable):

Annual daily volume disposed of by this method: _____

Is disposal through this method _____

continuous or _____

intermittent?

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP 0063177

Form Approved 1/14/99
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WASTEWATER DISCHARGES:

If you answered "yes" to question A.8.a, complete questions A.9 through A.12 once for each outfall (including bypass points) through which effluent is discharged. Do not include information on combined sewer overflows in this section. If you answered "no" to question A.8.a, go to Part B, "Additional Application Information for Applicants with a Design Flow Greater than or Equal to 0.1 mgd."

A.9. Description of Outfall.

- a. Outfall number 001
- b. Location Richmond, Virginia 23224
(City or town, if applicable) (Zip Code)
(County) (State)
N 37 ° 31 ' 02 " W 77 ° 25 ' 06 "
(Latitude) (Longitude)
- c. Distance from shore (if applicable) NA ft.
- d. Depth below surface (if applicable) NA ft.
- e. Average daily flow rate 52.20 mgd
- f. Does this outfall have either an intermittent or a periodic discharge?
_____ Yes ☒ No (go to A.9.g.)
- If yes, provide the following information:
- Number of times per year discharge occurs: NA
- Average duration of each discharge: NA
- Average flow per discharge: NA mgd
- Months in which discharge occurs: NA
- g. Is outfall equipped with a diffuser? _____ Yes ☒ No

A.10. Description of Receiving Waters.

- a. Name of receiving water James River
- b. Name of watershed (if known) Middle James - Willis
United States Soil Conservation Service 14-digit watershed code (if known): 00208020500H39
- c. Name of State Management/River Basin (if known): James River Basin
United States Geological Survey 8-digit hydrologic cataloging unit code (if known): 02080205
- d. Critical low flow of receiving stream (if applicable):
acute 487.00 cfs chronic 559.00 cfs
- e. Total hardness of receiving stream at critical low flow (if applicable): 91.00 mg/l of CaCO₃

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP 0063177

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A.11. Description of Treatment.

- a. What levels of treatment are provided? Check all that apply.

☒ Primary ☒ Secondary
☒ Advanced ☐ Other. Describe: _____

- b. Indicate the following removal rates (as applicable):

Design BOD₅ removal or Design CBOD₅ removal See Supplement %
 Design SS removal 2 A-p1 %
 Design P removal _____ %
 Design N removal _____ %
 Other _____ %

- c. What type of disinfection is used for the effluent from this outfall? If disinfection varies by season, please describe.

Chlorination

If disinfection is by chlorination, is dechlorination used for this outfall?

☒ Yes ☐ No

- d. Does the treatment plant have post aeration?

☒ Yes ☐ No

A.12. Effluent Testing Information. All Applicants that discharge to waters of the US must provide effluent testing data for the following parameters. Provide the indicated effluent testing required by the permitting authority for each outfall through which effluent is discharged. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. At a minimum, effluent testing data must be based on at least three samples and must be no more than four and one-half years apart.

Outfall number: 001

PARAMETER	MAXIMUM DAILY VALUE		AVERAGE DAILY VALUE		
	Value	Units	Value	Units	Number of Samples
pH (Minimum)	4.20	s.u.			
pH (Maximum)	8.60	s.u.			
Flow Rate	85.00	MGD	54.90	MGD	1,827.00
Temperature (Winter)	15.70	degC	14.50	degC	848.00
Temperature (Summer)	31.30	degC	24.50	degC	612.00

* For pH please report a minimum and a maximum daily value

POLLUTANT	MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML / MDL
	Conc.	Units	Conc.	Units	Number of Samples		

CONVENTIONAL AND NONCONVENTIONAL COMPOUNDS.

BIOCHEMICAL OXYGEN DEMAND (Report one)	BOD-5						
	CBOD-5	64.70	mg/l	3.20	mg/l	1,827.00	5210B,#6
FECAL COLIFORM		2,420.00		10.00	n/cml	1,006.00	
TOTAL SUSPENDED SOLIDS (TSS)		129.00	mg/l	4.00	mg/l	1,826.00	2540 D

END OF PART A.

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE

Richmond WWTP
VPDES Permit #VA0063177
Outfall No. 001
Supp. 2A-A1

Question No.

Item A.11.b Plant removal design criteria up to 75 mgd

	Monthly Avg Winter	Monthly Avg Summer	7 Day Rolling Avg Summer	7 Day Rolling Avg Winter
CBOD	14.3	N/A	8.0	21.4
Ammonia -N	15.2	6.4	9.6	22.8
Phosphorous	2	2	N/A	N/A
SS	18	N/A	10	27.0

Richmond WWTP
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FORM 2A - PART B:
ADDITIONAL APPLICATION INFORMATION

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP 0063177

Form Approved 1/14/99
OMB Number 2040-0086

BASIC APPLICATION INFORMATION

PART B. ADDITIONAL APPLICATION INFORMATION FOR APPLICANTS WITH A DESIGN FLOW GREATER THAN OR EQUAL TO 0.1 MGD (100,000 gallons per day).

All applicants with a design flow rate ≥ 0.1 mgd must answer questions B.1 through B.6. All others go to Part C (Certification).

B.1. Inflow and Infiltration. Estimate the average number of gallons per day that flow into the treatment works from inflow and/or infiltration.

11.40 gpd

Briefly explain any steps underway or planned to minimize inflow and infiltration.

From 2004 thru 2008 the City of Richmond relined 55,549 feet of sewer.

B.2. Topographic Map. Attach to this application a topographic map of the area extending at least one mile beyond facility property boundaries. This map must show the outline of the facility and the following information. (You may submit more than one map if one map does not show the entire area.)

- The area surrounding the treatment plant, including all unit processes.
- The major pipes or other structures through which wastewater enters the treatment works and the pipes or other structures through which treated wastewater is discharged from the treatment plant. Include outfalls from bypass piping, if applicable.
- Each well where wastewater from the treatment plant is injected underground.
- Wells, springs, other surface water bodies, and drinking water wells that are: 1) within 1/4 mile of the property boundaries of the treatment works, and 2) listed in public record or otherwise known to the applicant.
- Any areas where the sewage sludge produced by the treatment works is stored, treated, or disposed.
- If the treatment works receives waste that is classified as hazardous under the Resource Conservation and Recovery Act (RCRA) by truck, rail, or special pipe, show on the map where that hazardous waste enters the treatment works and where it is treated, stored, and/or disposed.

B.3. Process Flow Diagram or Schematic. Provide a diagram showing the processes of the treatment plant, including all bypass piping and all backup power sources or redundancy in the system. Also provide a water balance showing all treatment units, including disinfection (e.g., chlorination and dechlorination). The water balance must show daily average flow rates at influent and discharge points and approximate daily flow rates between treatment units. Include a brief narrative description of the diagram.

B.4. Operation/Maintenance Performed by Contractor(s).

Are any operational or maintenance aspects (related to wastewater treatment and effluent quality) of the treatment works the responsibility of a contractor? ☒ Yes ☐ No

If yes, list the name, address, telephone number, and status of each contractor and describe the contractor's responsibilities (attach additional pages if necessary).

Name: Atlas

Mailing Address: PO Box 3598 Chester Va 23831

Telephone Number: (804) 796-1720

Responsibilities of Contractor: Vacuum scum off surface of Primary and Final sedimentation Tanks

B.5. Scheduled Improvements and Schedules of Implementation. Provide information on any uncompleted implementation schedule or uncompleted plans for improvements that will affect the wastewater treatment, effluent quality, or design capacity of the treatment works. If the treatment works has several different implementation schedules or is planning several improvements, submit separate responses to question B.5 for each. (If none, go to question B.6.)

- a. List the outfall number (assigned in question A.9) for each outfall that is covered by this implementation schedule.

001

- b. Indicate whether the planned improvements or implementation schedule are required by local, State, or Federal agencies.

☒ Yes ☐ No

FACILITY NAME AND PERMIT NUMBER:
RICHMOND WWTP 0063177

Form Approved 1/14/99
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- c. If the answer to B.5.b is "Yes," briefly describe, including new maximum daily inflow rate (if applicable).

See Supplement 2B-1

- d. Provide dates imposed by any compliance schedule or any actual dates of completion for the implementation steps listed below, as applicable. For improvements planned independently of local, State, or Federal agencies, indicate planned or actual completion dates, as applicable. Indicate dates as accurately as possible.

Implementation Stage	Schedule MM / DD / YYYY	Actual Completion MM / DD / YYYY
- Begin construction	___/___/___	___/___/___
- End construction	___/___/___	___/___/___
- Begin discharge	___/___/___	___/___/___
- Attain operational level	___/___/___	___/___/___

- e. Have appropriate permits/clearances concerning other Federal/State requirements been obtained? ☐ Yes ☐ No

Describe briefly: _____

B.6. EFFLUENT TESTING DATA (GREATER THAN 0.1 MGD ONLY).

Applicants that discharge to waters of the US must provide effluent testing data for the following parameters. Provide the indicated effluent testing required by the permitting authority for each outfall through which effluent is discharged. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. At a minimum, effluent testing data must be based on at least three pollutant scans and must be no more than four and one-half years old.

Outfall Number: 001

POLLUTANT	MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML / MDL
	Conc.	Units	Conc.	Units	Number of Samples		
CONVENTIONAL AND NONCONVENTIONAL COMPOUNDS.							
AMMONIA (as N)	30.00	mg/l	1.90	mg/l	1,826.00	EPA 350.1	
CHLORINE (TOTAL RESIDUAL, TRC)	1.80	mg/l	0.07	mg/l			0.07
DISSOLVED OXYGEN	13.80	mg/l	8.50	mg/l	1,370.00	sm18/4500	
TOTAL KJELDAHL NITROGEN (TKN)	30.90	mg/l	3.60	mg/l	1,414.00	EPA 351.4	0.5
NITRATE PLUS NITRITE NITROGEN	25.90	mg/l	9.80	mg/l	1,409.00	EPA 353.2	0.5
OIL and GREASE	5.00	mg/l	5.00	mg/l	3.00	EPA 1664	5mg/l
PHOSPHORUS (Total)	4.90	mg/l	1.10	mg/l	1,826.00	EPA 365.4	0.3
TOTAL DISSOLVED SOLIDS (TDS)	268.00	mg/l				SM18/2540C	10
OTHER							

END OF PART B.

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE

Richmond WWTP
VPDES Permit #VA0063177
Supplement 2B-1

The following projects are projected for the Richmond plant, upgrades for Chesapeake Bay Nutrient Reduction. (Nitrogen and Phosphorus)

Div 35 Phosphorus Control (Prim and Second) - start Apr 6, 2009- scheduled completion: Dec. 31 2009

Div 36 Methanol - start Apr 6, 2009 - scheduled completion Jun 29, 2010

Div 37 Effluent Filters (north and south sides) - start Apr 6, 2009 - scheduled completion Sep 27, 2010

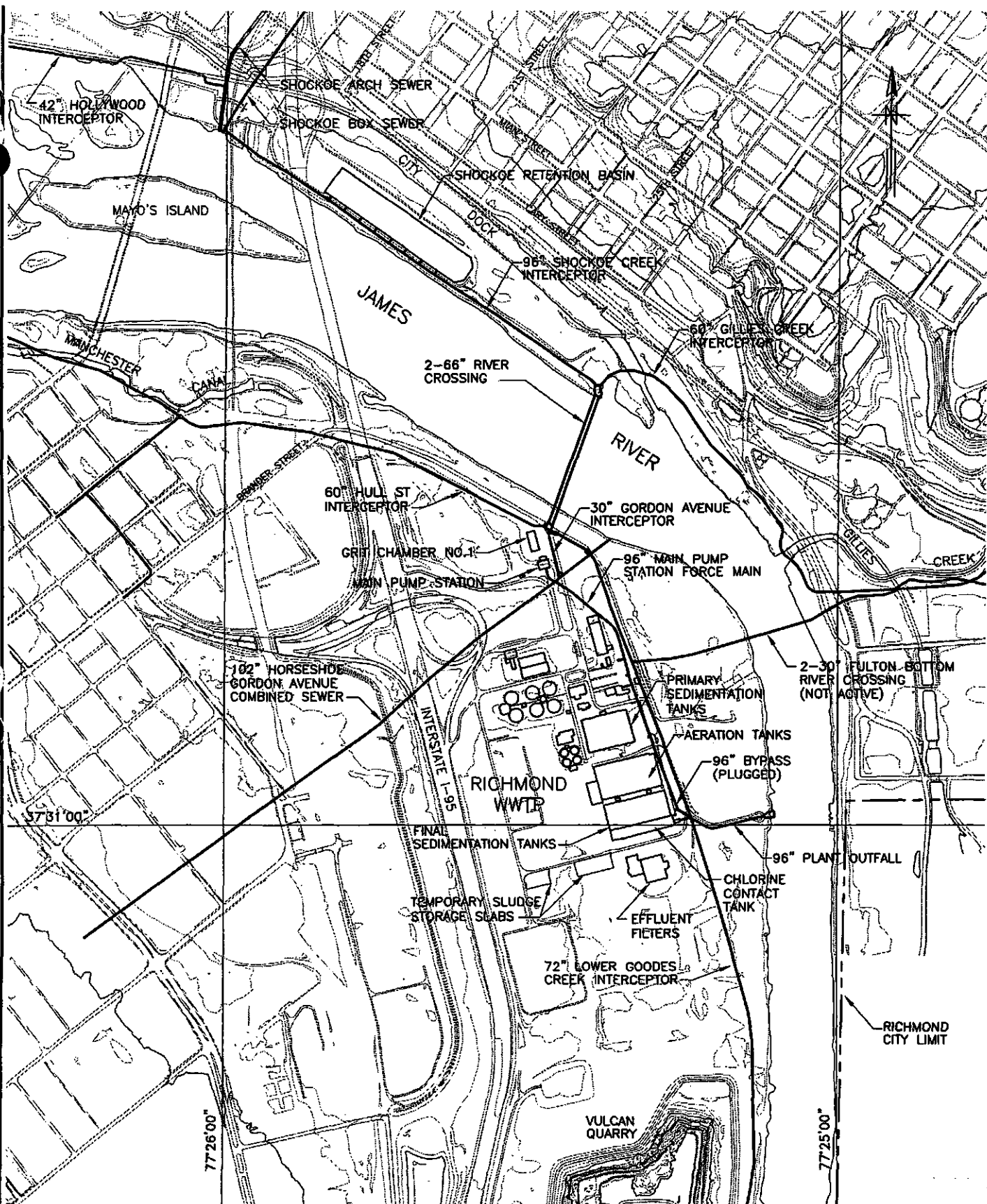
Div 38 UV disinfection - projected start Jan 30, 2010 - projected completion Aug 30, 2011

Div 39 Main plant power - projected start Jan 30, 2010 - projected completion Apr 30, 2011

Div 40 Scum Control - actual start Jun 1, 2009 - projected completion Dec 2, 2010

Contract 4 - Divisions 41 (Aeration) 42 (RAS) and 43 (Bioaug) - projected start Mar 1, 2010 - projected completion Sep 30, 2011

Contract 5 - Division 44 (Sed tanks) and 45 (Fermentation) - projected start Nov 1 2010 - projected completion Apr 1, 2012



TOPOGRAPHICAL MAP OF RICHMOND WWTW

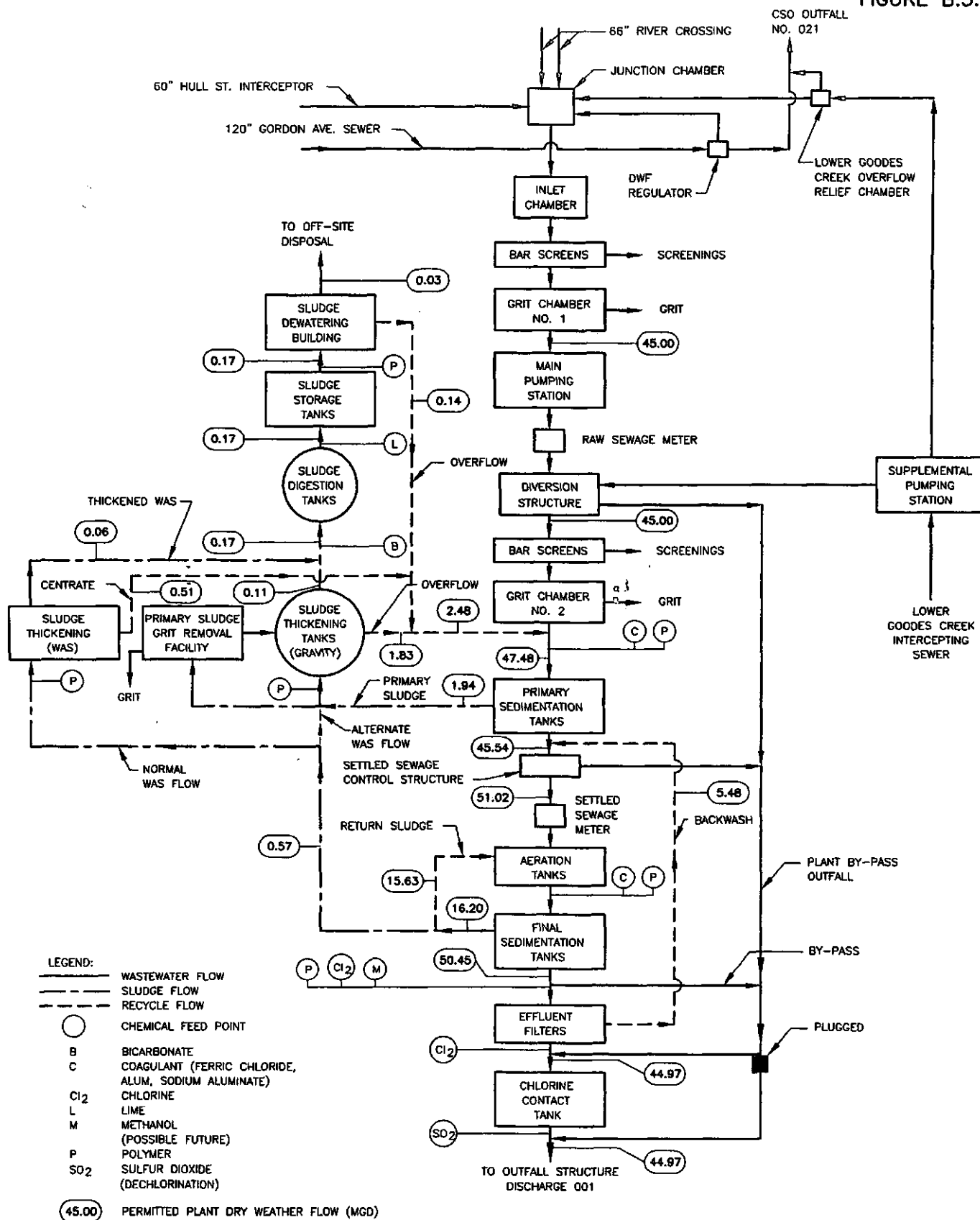
SCALE: 1"=1000'

CITY OF RICHMOND, VIRGINIA
DEPARTMENT OF PUBLIC UTILITIES
VPDES PERMIT REISSUANCE APPLICATION

GREELEY AND HANSEN LLC

FILE: \\0217EVPDES\DWGS\FIGURE 9.2 1:1 05/20/02 10:57 GH-F

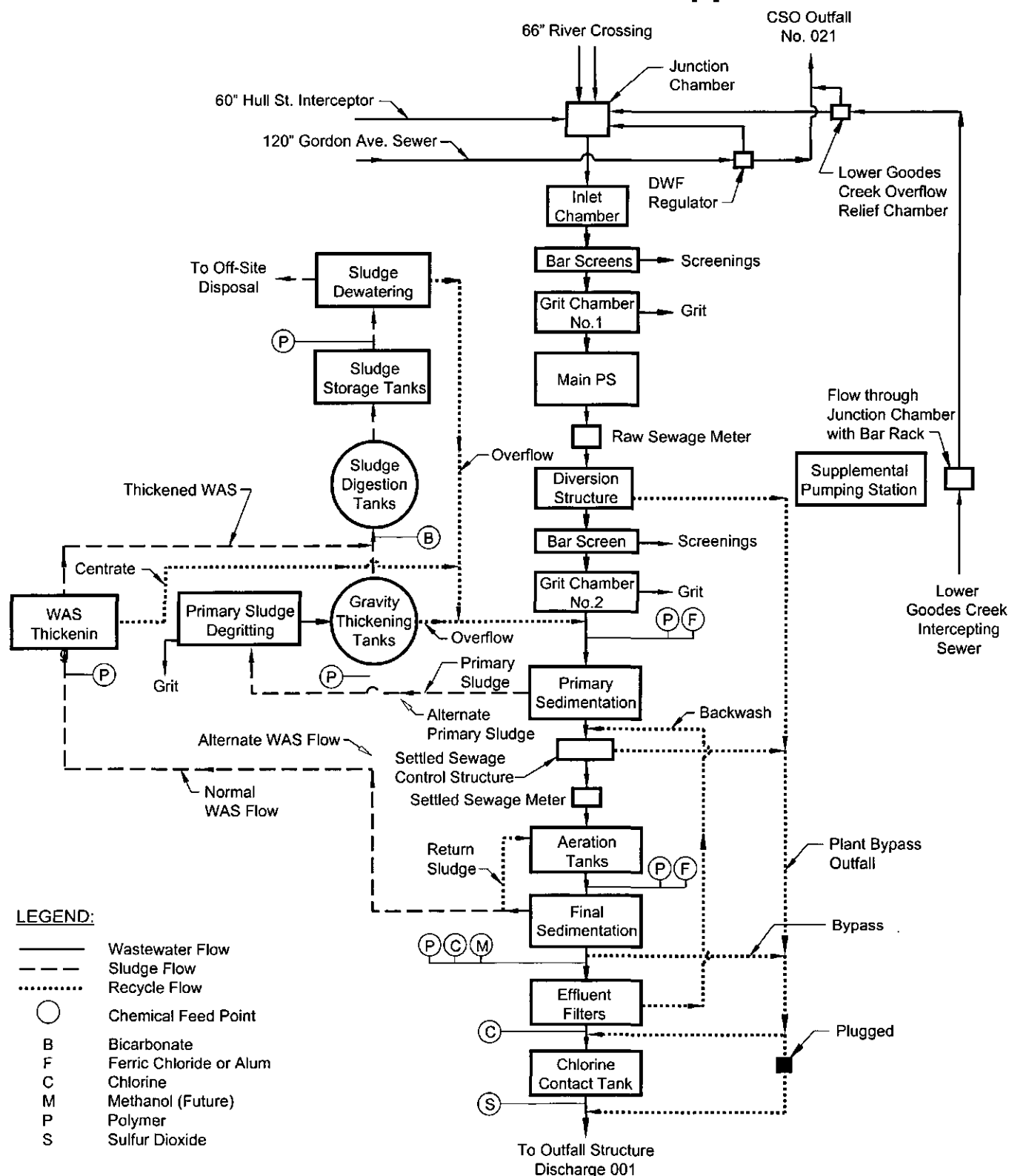
FIGURE B.3.



WWTP FLOW DIAGRAM AND WATER BALANCE

CITY OF RICHMOND, VIRGINIA
DEPARTMENT OF PUBLIC UTILITIES
VPDES PERMIT REISSUANCE APPLICATION

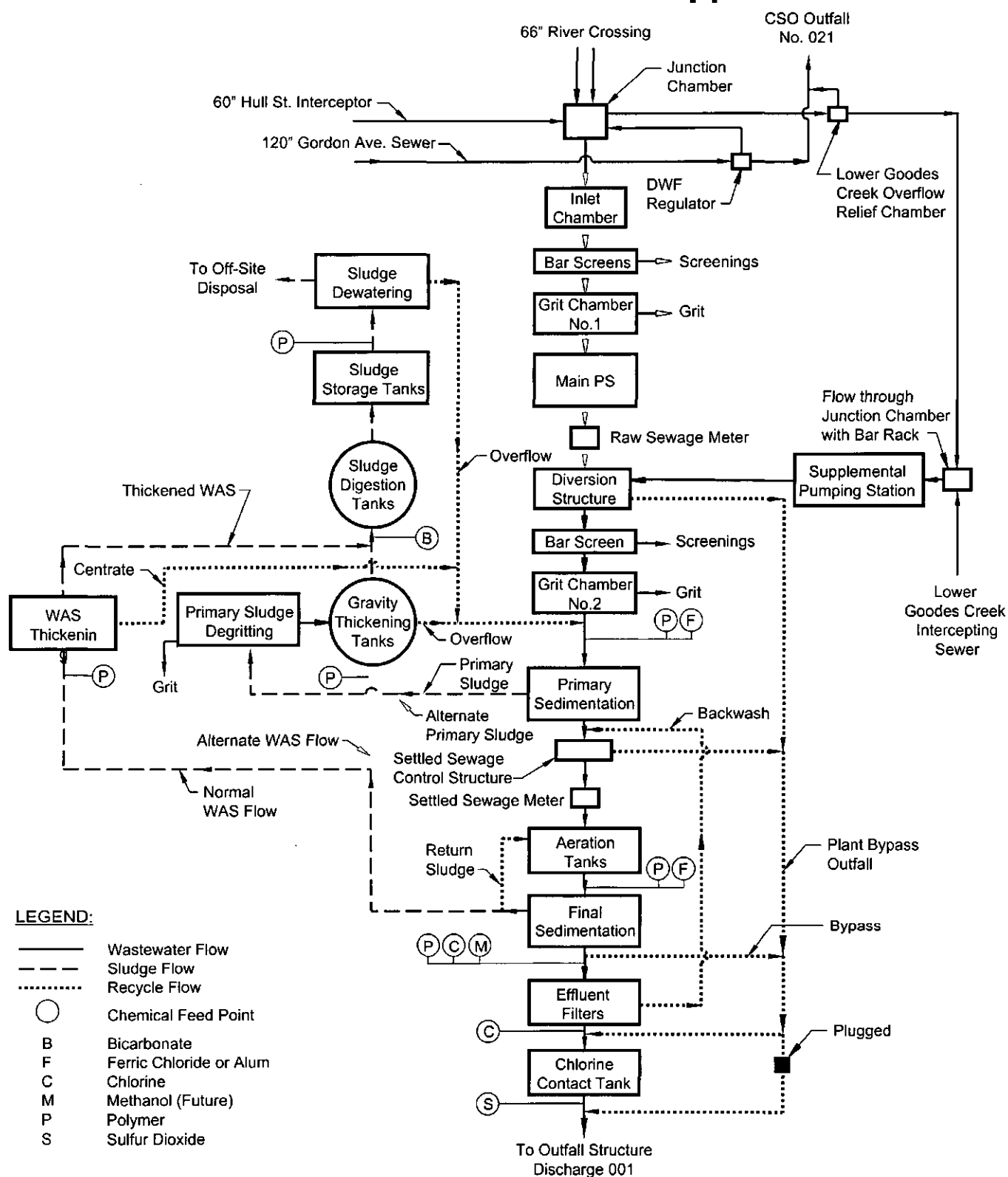
Appendix A - Exhibit 1



Richmond Wastewater Treatment Plant Flow Sheet: Normal Operation

City of Richmond, Virginia
Department of Public Utilities
August 2009

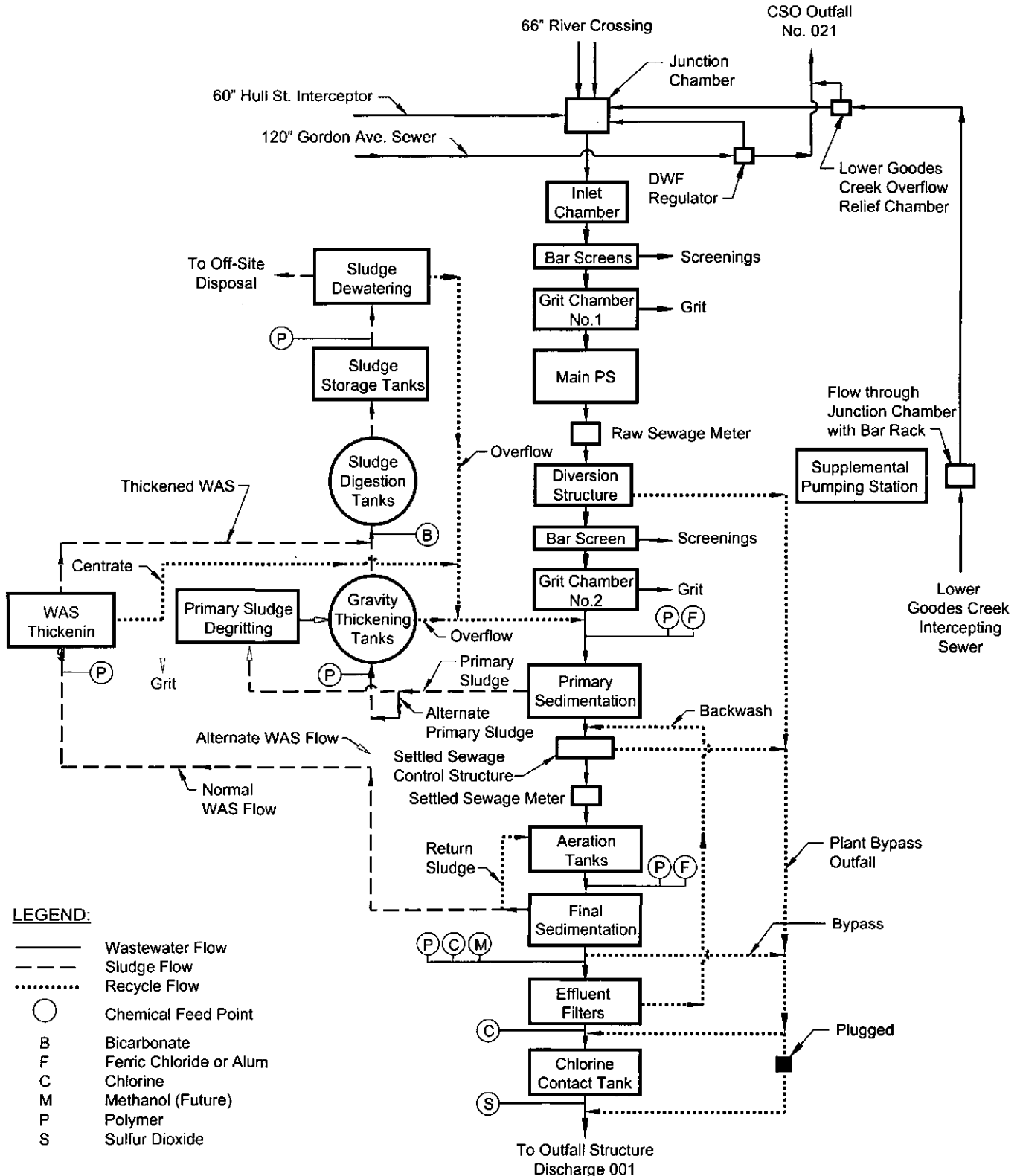
Appendix A - Exhibit 2



Richmond Wastewater Treatment Plant Flow Sheet: Main Pumping Station Out of Service

City of Richmond, Virginia
Department of Public Utilities
August 2009

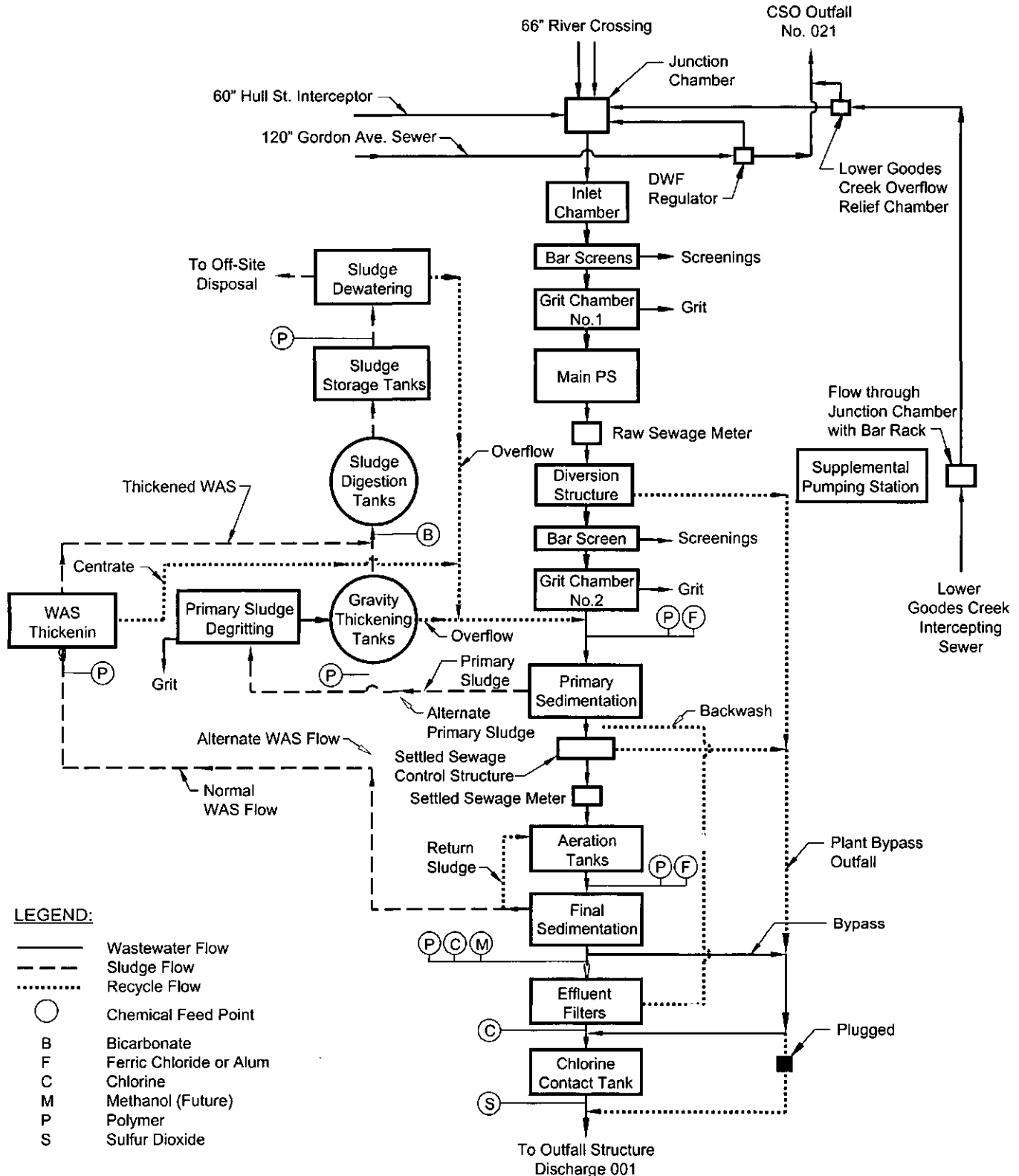
Appendix A - Exhibit 3



Richmond Wastewater Treatment Plant Flow Sheet: Primary Sludge Degritting Out of Service

City of Richmond, Virginia
Department of Public Utilities
August 2009

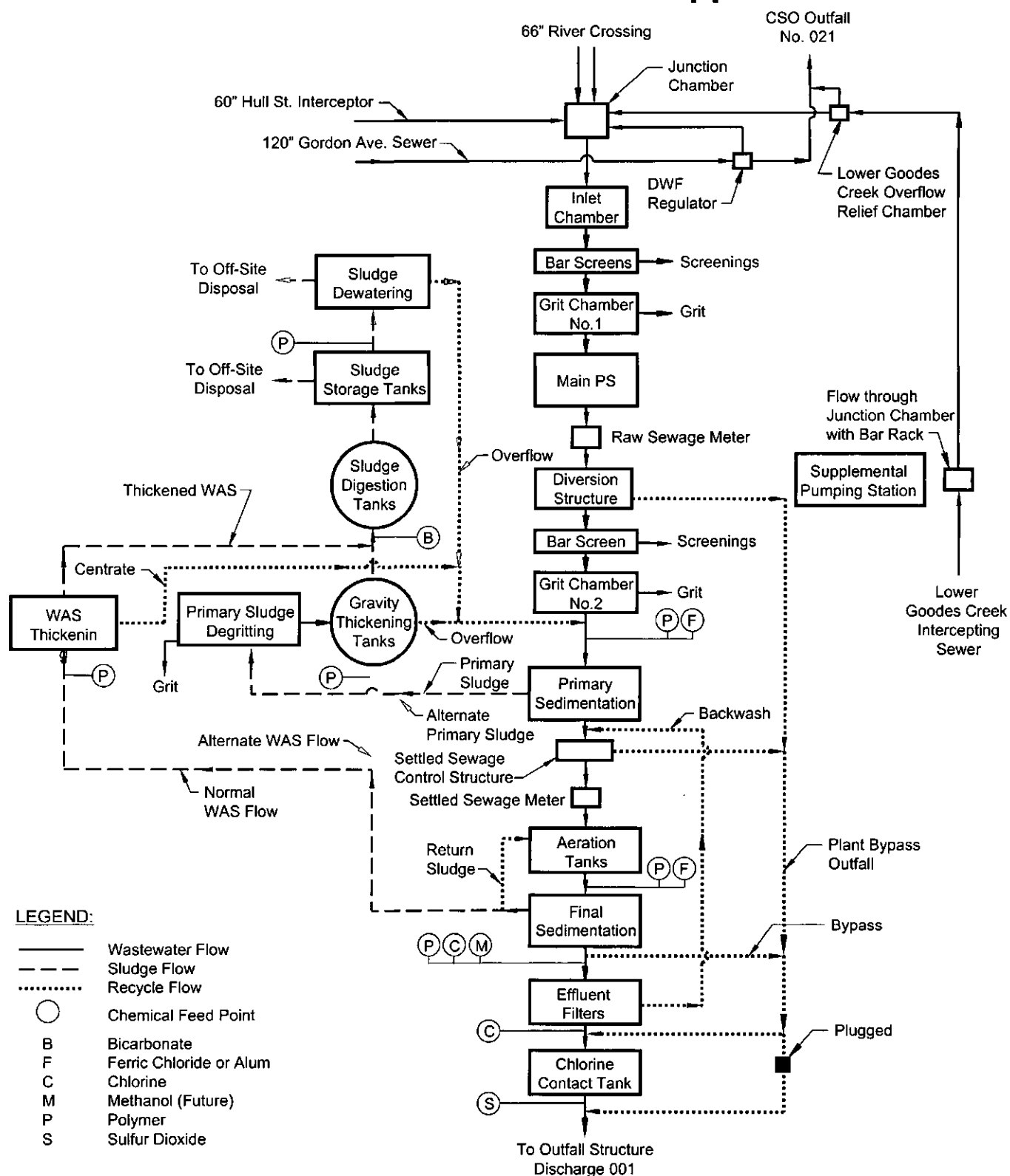
Appendix A - Exhibit 4



Richmond Wastewater Treatment Plant Flow Sheet: Bypass Effluent Filter

City of Richmond, Virginia
Department of Public Utilities
August 2009

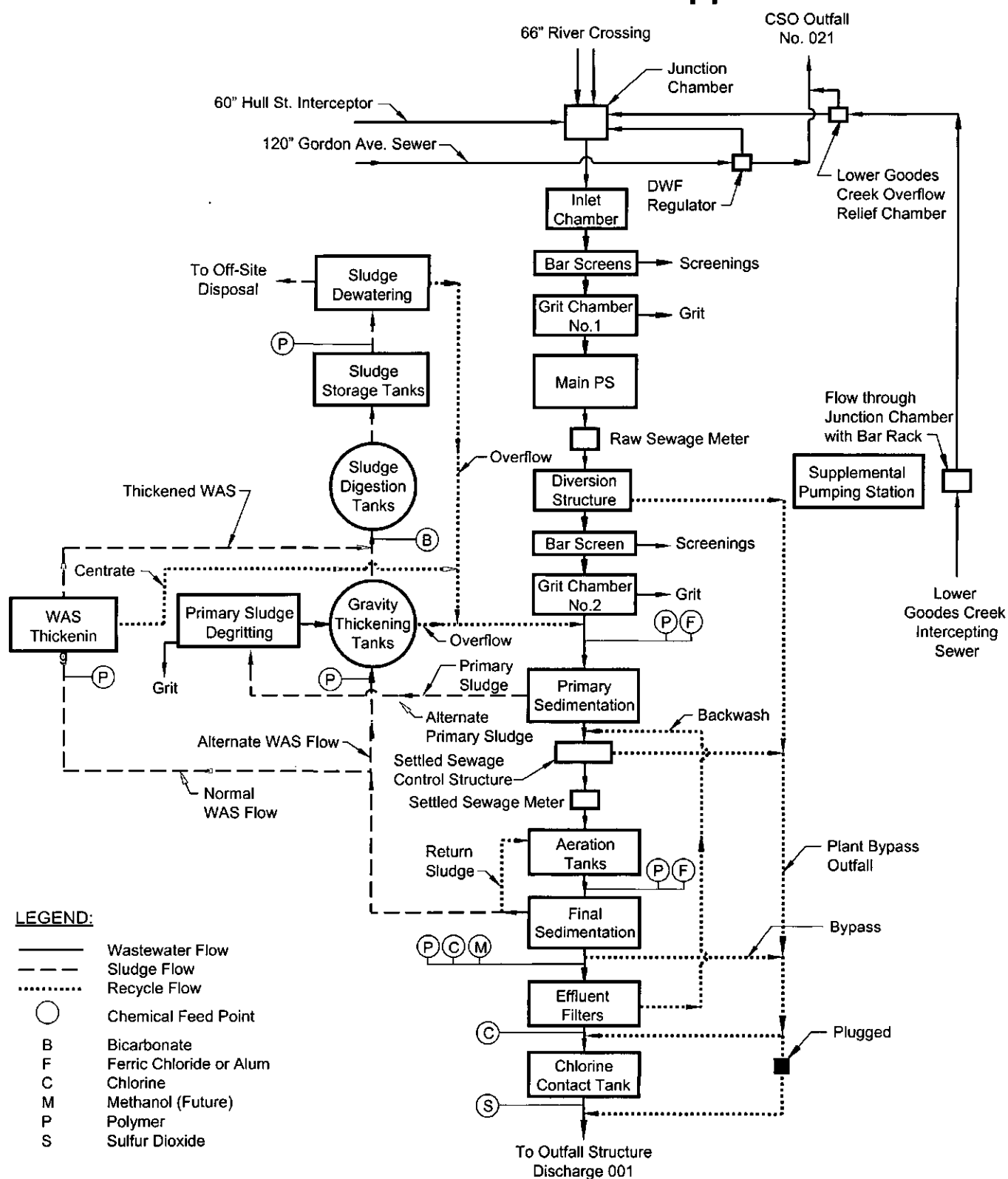
Appendix A - Exhibit 5



Richmond Wastewater Treatment Plant Flow Sheet: Sludge Dewatering Out of Service

City of Richmond, Virginia
Department of Public Utilities
August 2009

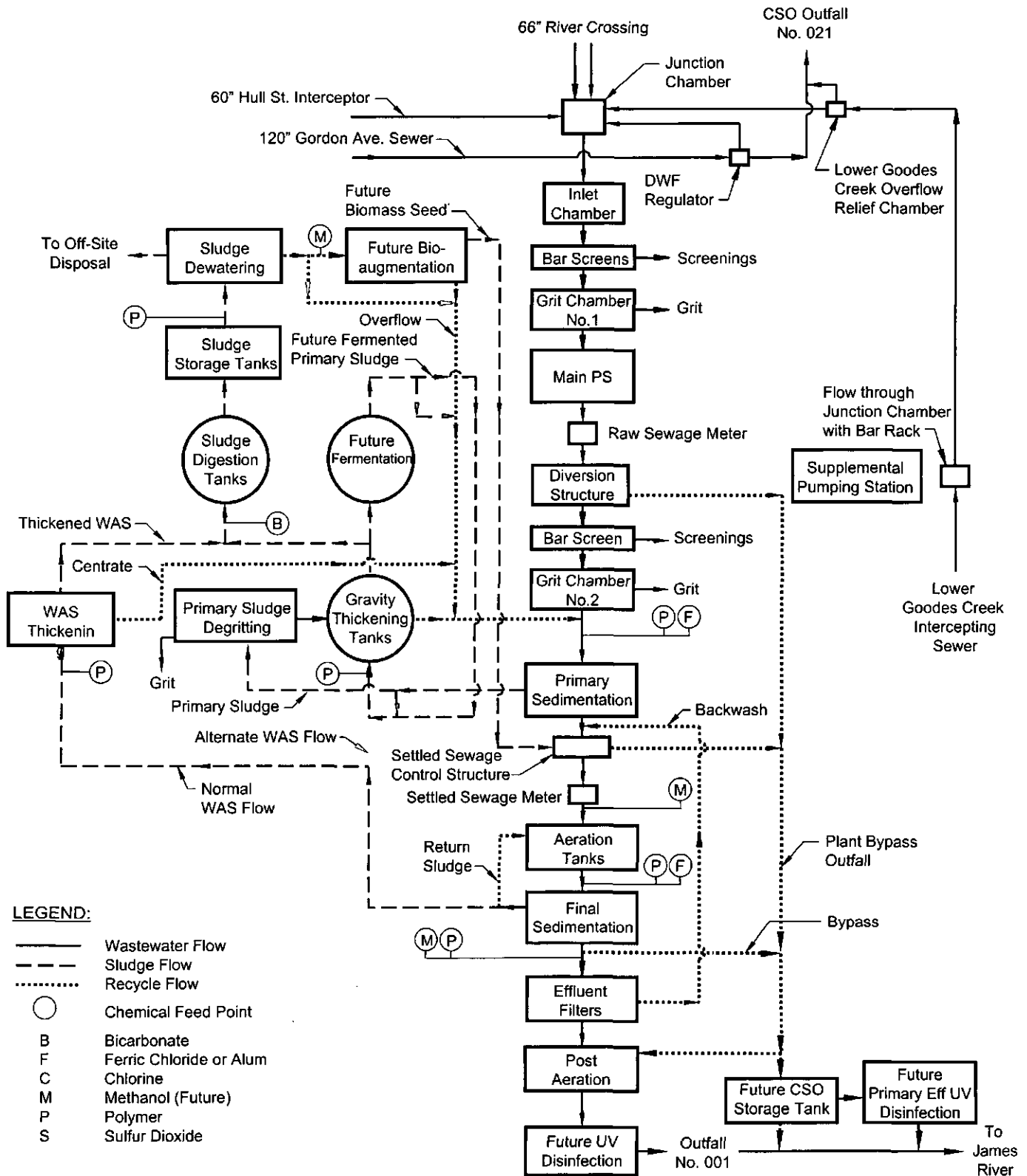
Appendix A - Exhibit 6



Richmond Wastewater Treatment Plant Flow Sheet: WAS Thickening Out of Service

City of Richmond, Virginia
Department of Public Utilities
August 2009

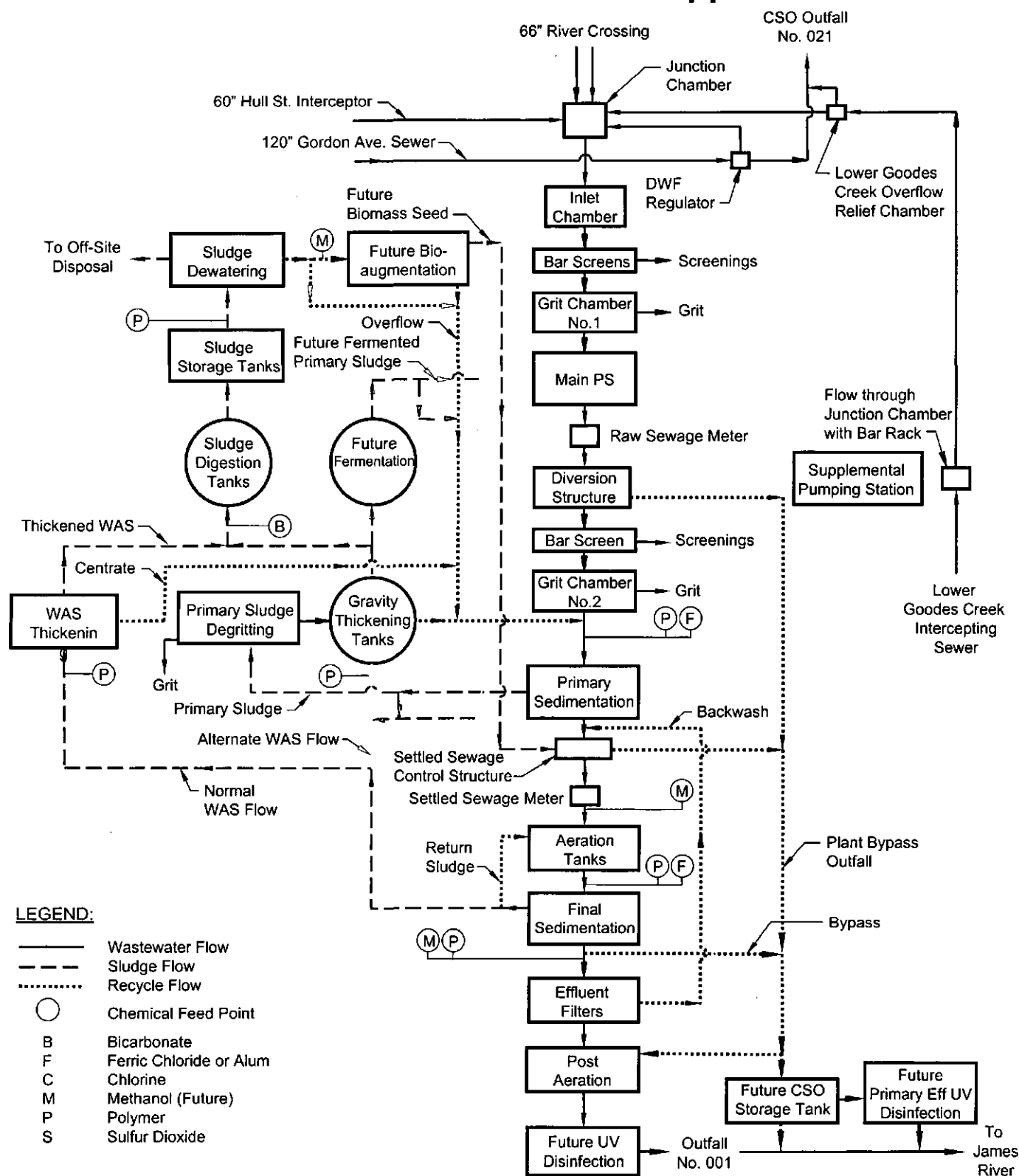
Appendix A - Exhibit 7



Richmond Wastewater Treatment Plant Flow Sheet: Future Normal Operation

City of Richmond, Virginia
Department of Public Utilities
August 2009

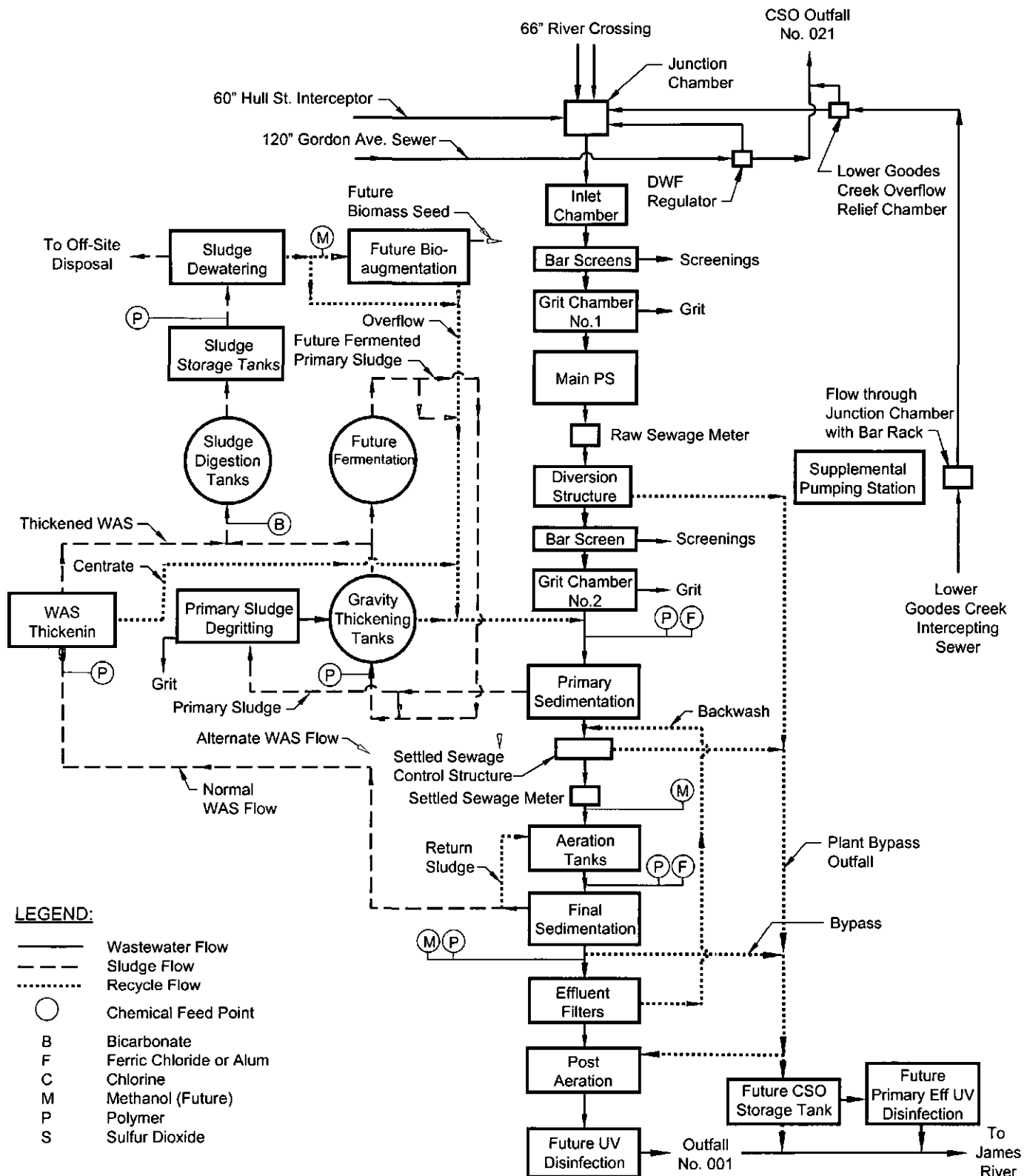
Appendix A - Exhibit 8



Richmond Wastewater Treatment Plant Flow Sheet: Future with Fermentation Out of Service

City of Richmond, Virginia
Department of Public Utilities
August 2009

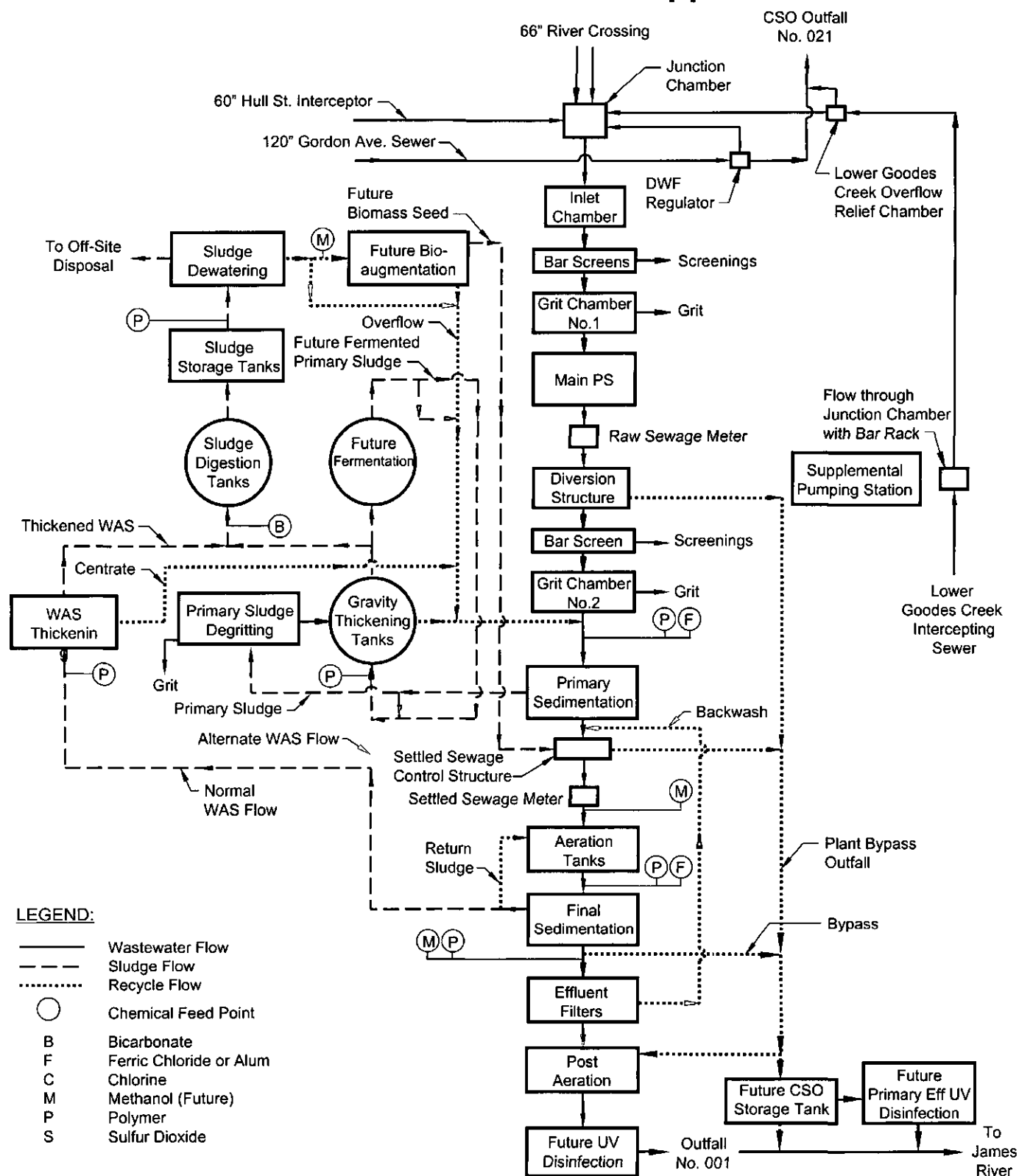
Appendix A - Exhibit 9



Richmond Wastewater Treatment Plant Flow Sheet: Future with Bioaugmentation Out of Service

City of Richmond, Virginia
Department of Public Utilities
August 2009

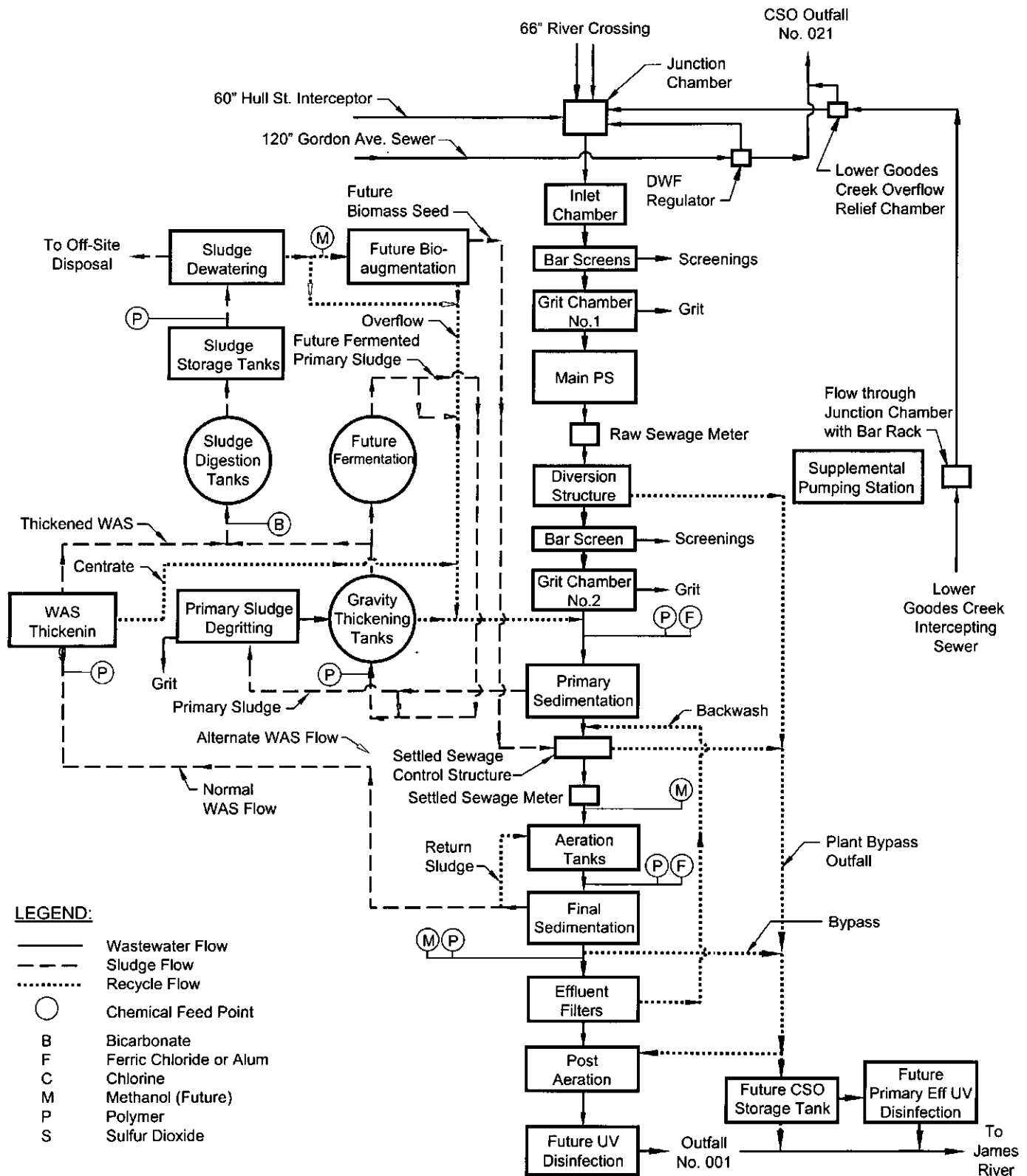
Appendix A - Exhibit 10



Richmond Wastewater Treatment Plant Flow Sheet: Future with Filters Out of Service

City of Richmond, Virginia
Department of Public Utilities
August 2009

Appendix A - Exhibit 11



Richmond Wastewater Treatment Plant Flow Sheet: Future with Testing of Primary Effluent UV Disinfection

City of Richmond, Virginia
Department of Public Utilities
August 2009

Richmond WWTP
VPDES Permit #VA0063177
Outfall No. 001
Permit Reissuance Application

**FORM 2A - PART C:
CERTIFICATION**

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

Form Approved 1/14/99
OMB Number 2040-0086

BASIC APPLICATION INFORMATION

PART C. CERTIFICATION

All applicants must complete the Certification Section. Refer to instructions to determine who is an officer for the purposes of this certification. All applicants must complete all applicable sections of Form 2A, as explained in the Application Overview. Indicate below which parts of form 2A you have completed and are submitting. By signing this certification statement, applicants confirm that they have reviewed Form 2A and have completed all sections that apply to the facility for which this application is submitted.

Indicate which parts of Form 2A you have completed and are submitting:

☒ Basic application Information packet

Supplemental Application Information packet:

☒ Part D (Expanded Effluent Testing Data)

☒ Part E (Toxicity Testing: Biomonitoring Data)

☒ Part F (Industrial User Discharges and RCRA/CERCLA Wastes)

☒ Part G (Combined Sewer Systems)

ALL APPLICANTS MUST COMPLETE THE FOLLOWING CERTIFICATION.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based in my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name and official title

Christopher Beschler, Director of Public Utilities

Signature

Telephone number

(804) 648-5200

Date signed

8-26-2009

Upon request of the permitting authority, you must submit any other information necessary to assess wastewater treatment practices at the treatment works or identify appropriate permitting requirements.

SEND COMPLETED FORMS TO:

Richmond WWTP
VPDES Permit #VA0063177
Outfall No. 001
Permit Reissuance Application

FORM 2A - PART D:
EXPANDED EFFLUENT TESTING DATA

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA0063177

Form Approved 1/14/99
OMB Number 2040-0086

SUPPLEMENTAL APPLICATION INFORMATION

PART D. Expanded Effluent Testing Data

Refer to the directions on the cover page to determine where this section applies to the treatment works.

Effluent Testing: 1.0 mgd and Pretreatment Treatment Works. If the treatment works has a design flow greater than or equal to 1.0 mgd or it has (or is required to have) a pretreatment program, or is otherwise required by the permitting authority to provide the data, then provide effluent testing data for the following pollutants. Provide the indicated effluent testing information and any other information required by the permitting authority for each outfall through which effluent is discharge. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analyses conducted using 40 CFR Part 136 methods. In addition, these data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. Indicate in the blank rows provided below any data you may have on pollutants not specifically listed in this form. At a minimum, effluent testing data must be based no at least three pollutant scans and must be no more than four and one-half years old.

Outfall number: 001 (Complete once for each outfall discharging effluent to waters of the United States.)

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples		
DISSOLVED METALS											
ANTIMONY	<80	ug/L			<80	ug/L			3	EPA 200.7	
ARSENIC	<60	ug/L			<60	ug/L			3	EPA 200.7	
BERYLLIUM	<2	ug/L			<2	ug/L			3	EPA 200.7	
CADMIUM	0.13	ug/L			0.13	ug/L			3	EPA 200.8	
CHROMIUM	<10	ug/L			<10	ug/L			3	EPA 200.7	
COPPER	5	ug/L			5	ug/L			3	EPA 200.7	
LEAD	<20	ug/L			<20	ug/L			3	EPA 200.7	
MERCURY	<0.1	ug/L			<0.1	ug/L			3	EPA 245.1	
NICKEL	<10	ug/L			<10	ug/L			3	EPA 200.7	
SELENIUM	<2	ug/L			<2	ug/L			3	EPA 200.8	
SILVER	<0.5	ug/L			<0.5	ug/L			3	EPA 200.8	
THALLIUM	<40	ug/L			<40	ug/L			3	EPA 200.7	
ZINC	50	ug/L			50	ug/L			3	EPA 200.7	
		ug/L				ug/L					
		ug/L				ug/L					
		mg/L				mg/L					

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP 0063177

Form Approved 1/14/99
OMB Number 2040-0086Outfall number: 001 (Complete once for each outfall discharging effluent to waters of the United States.)

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/ MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples		
VOLATILE ORGANIC COMPOUNDS.											
ACROLEIN	<10	ug/L			<10	ug/L			3	EPA 624	
ACRYLONITRILE	<10	ug/L			<10	ug/L			3	EPA 624	
BENZENE	<10	ug/L			<10	ug/L			3	EPA 624	
BROMOFORM	<10	ug/L			<10	ug/L			3	EPA 624	
CARBON TETRACHLORIDE	<10	ug/L			<10	ug/L			3	EPA 624	
CLOROBENZENE	<10	ug/L			10	ug/L			3	EPA 624	
CHLORODIBROMO-METHANE	11.5	ug/L			10.5	ug/L			3	EPA 624	
CHLOROETHANE	<10	ug/L			<10	ug/L			3	EPA 624	
2-CHLORO-ETHYL VINYL ETHER	<10	ug/L			<10	ug/L			3	EPA 624	
CHLOROFORM	13.1	ug/L			11	ug/L			3	EPA 624	
DICHLOROBROMO-METHANE	11.5	ug/L			10.5	ug/L			3	EPA 624	
1,1-DICHLOROETHANE	<10	ug/L			<10	ug/L			3	EPA 624	
1,2-DICHLOROETHANE	<10	ug/L			<10	ug/L			3	EPA 624	
TRANS-1,2-DICHLORO-ETHYLENE	<10	ug/L			<10	ug/L			3	EPA 624	
1,1-DICHLOROETHYLENE	<10	ug/L			<10	ug/L			3	EPA 624	
1,2-DICHLOROPROPANE	<10	ug/L			<10	ug/L			3	EPA 624	
1,3-DICHLORO-PROPYLENE	<10	ug/l			<10	ug/L			3	EPA 624	
ETHYLBENZENE	<10	ug/L			<10	ug/L			3	EPA 624	
METHYL BROMIDE	<10	ug/L			<10	ug/L			3	EPA 624	
METHYL CHLORIDE	<10	ug/L			<10	ug/L			3	EPA 624	
METHYLENE CHLORIDE	<10	ug/L			<10	ug/L			3	EPA 624	
1,1,2,2-TETRACHLORO-ETHANE	<10	ug/L			<10	ug/L			3	EPA 624	
TETRACHLORO-ETHYLENE	<10	ug/L			<10	ug/L			3	EPA 624	
TOLUENE	<10	ug/L			<10	ug/L			3	EPA 624	

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP 0063177

Form Approved 1/14/99
OMB Number 2040-0086Outfall number: 001 (Complete once for each outfall discharging effluent to waters of the United States.)

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/ MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples		
1,1,1-TRICHLOROETHANE	<10	ug/L			<10	ug/L			3	EPA 624	
1,1,2-TRICHLOROETHANE	<10	ug/L			<10	ug/L			3	EPA 624	
TRICHLOROETHYLENE	<10	ug/L			<10	ug/L			3	EPA 624	
VINYL CHLORIDE	<10	ug/L			<10	ug/L			3	EPA 624	

Use this space (or a separate sheet) to provide information on other volatile organic compounds requested by the permit writer.

ACID-EXTRACTABLE COMPOUNDS

P-CHLORO-M-CRESOL	<10	ug/L			<10	ug/L			3	EPA 625	
2-CHLOROPHENOL	<10	ug/L			<10	ug/L			3	EPA 625	
2,4-DICHLOROPHENOL	<10	ug/L			<10	ug/L			3	EPA 625	
2,4-DIMETHYLPHENOL	<10	ug/L			<10	ug/L			3	EPA 625	
4,6-DINITRO-O-CRESOL	<10	ug/L			<10	ug/L			3	EPA 625	
2,4-DINITROPHENOL	<10	ug/L			<10	ug/L			3	EPA 625	
2-NITROPHENOL	<10	ug/L			<10	ug/L			3	EPA 625	
4-NITROPHENOL	<10	ug/L			<10	ug/L			3	EPA 625	
PENTACHLOROPHENOL	<10	ug/L			<10	ug/L			3	EPA 625	
PHENOL	<10	ug/L			<10	ug/L			3	EPA 625	
2,4,6-TRICHLOROPHENOL	<10	ug/L			<10	ug/L			3	EPA 625	

Use this space (or a separate sheet) to provide information on other acid-extractable compounds requested by the permit writer.

BASE-NEUTRAL COMPOUNDS.

ACENAPHTHENE	<10	ug/L			<10	ug/L			3	EPA 625	
ACENAPHTHYLENE	<10	ug/L			<10	ug/L			3	EPA 625	
ANTHRACENE	<10	ug/L			<10	ug/L			3	EPA 625	
BENZIDINE	<10	ug/L			<10	ug/L			3	EPA 625	
BENZO(A)ANTHRACENE	<10	ug/L			<10	ug/L			3	EPA 625	
BENZO(A)PYRENE	<10	ug/L			<10	ug/L			3	EPA 625	

FACILITY NAME AND PERMIT NUMBER:
RICHMOND WWTP 0063177

Form Approved 1/14/99
OMB Number 2040-0086

Outfall number: _____ (Complete once for each outfall discharging effluent to waters of the United States.)

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/ MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples		
3,4 BENZO-FLUORANTHENE	<10	ug/L			<10	ug/L			3	EPA 625	
BENZO(GH)PERYLENE	<10				<10				3	EPA 625	
BENZO(K)FLUORANTHENE	<10				<10				3	EPA 625	
BIS (2-CHLOROETHOXY) METHANE	<10				<10				3	EPA 625	
BIS (2-CHLOROETHYL)-ETHER	<10				<10				3	EPA 625	
BIS (2-CHLOROISO-PROPYL) ETHER	<10				<10				3	EPA 625	
BIS (2-ETHYLHEXYL) PHTHALATE	<10				<10				3	EPA 625	
4-BROMOPHENYL PHENYL ETHER	<10				<10				3	EPA 625	
BUTYL BENZYL PHTHALATE	<10				<10				3	EPA 625	
2-CHLORONAPHTHALENE	<10				<10				3	EPA 625	
4-CHLOROPHENYL PHENYL ETHER	<10				<10				3	EPA 625	
CHRYSENE	<10				<10				3	EPA 625	
DI-N-BUTYL PHTHALATE	<10				<10				3	EPA 625	
DI-N-OCTYL PHTHALATE	<10				<10				3	EPA 625	
DIBENZO(A,H) ANTHRACENE	<10				<10				3	EPA 625	
1,2-DICHLOROBENZENE	<10				<10				3	EPA 625	
1,3-DICHLOROBENZENE	<10				<10				3	EPA 625	
1,4-DICHLOROBENZENE	<10				<10				3	EPA 625	
3,3-DICHLOROBENZIDINE	<10				<10				3	EPA 625	
DIETHYL PHTHALATE	<10				<10				3	EPA 625	
DIMETHYL PHTHALATE	<10				<10				3	EPA 625	
2,4-DINITROTOLUENE	<10				<10				3	EPA 625	
2,6-DINITROTOLUENE	<10				<10				3	EPA 625	
1,2-DIPHENYLHYDRAZINE	<10	ug/L			<10	ug/L			3	EPA 625	

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP 0063177

Form Approved 1/14/99
OMB Number 2040-0086

Outfall number: 001 (Complete once for each outfall discharging effluent to waters of the United States.)

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples		
FLUORANTHENE	<10	ug/L			<10	ug/L			3	EPA 625	
FLUORENE	<10	ug/L			<10	ug/L			3	EPA 625	
HEXACHLOROBENZENE	<10	ug/L			<10	ug/L			3	EPA 625	
HEXACHLOROBUTADIENE	<10	ug/L			<10	ug/L			3	EPA 625	
HEXACHLOROCYCLO-PENTADIENE	<10	ug/L			<10	ug/L			3	EPA 625	
HEXACHLOROETHANE	<10	ug/L			<10	ug/L			3	EPA 625	
INDENO(1,2,3-CD)PYRENE	<10	ug/L			<10	ug/L			3	EPA 625	
ISOPHORONE	<10	ug/L			<10	ug/L			3	EPA 625	
NAPHTHALENE	<10	ug/L			<10	ug/L			3	EPA 625	
NITROBENZENE	<10	ug/L			<10	ug/L			3		
N-NITROSODI-N-PROPYLAMINE	<10	ug/L			<10	ug/L			3	EPA 625	
N-NITROSODI- METHYLAMINE	<10	ug/L			<10	ug/L			3	EPA 625	
N-NITROSODI-PHENYLAMINE	<10	ug/L			<10	ug/L			3	EPA 625	
PHENANTHRENE	<10	ug/L			<10	ug/L			3	EPA 625	
PYRENE	<10	ug/L			<10	ug/L			3	EPA 625	
1,2,4-TRICHLOROBENZENE	<10	ug/L			<10	ug/L			3	EPA 625	

Use this space (or a separate sheet) to provide information on other base-neutral compounds requested by the permit writer.

Use this space (or a separate sheet) to provide information on other pollutants (e.g., pesticides) requested by the permit writer.

END OF PART D.

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

Form Approved 1/14/99
OMB Number 2040-0086

Outfall number: 001 (Complete once for each outfall discharging effluent to waters of the United States.)

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples		
Pesticides & PCB's											
Hexachlorocyclohexane Alpha-BHC	<0.05	ug/L			<0.05	ug/L			1	EPA 608	
Alpha-Endosulfan	<0.05	ug/L			<0.05	ug/L			1	EPA 608	
Hexachlorocyclohexane Beta-BHC	<0.05	ug/L			<0.05	ug/L			1	EPA 608	
Beta-Endosulfan	<0.05	ug/L			<0.05	ug/L			1	EPA 608	
Endosulfan sulfate	<0.05	ug/L			<0.05	ug/L			1	EPA 608	
Endrin aldehyde	<0.05	ug/L			<0.05	ug/L			1	EPA 608	
Heptachlor epoxide	<0.05	ug/L			<0.05	ug/L			1	EPA 608	
PCB 1016	ND	ug/L			ND	ug/L			1	EPA 608	
PCB 1221	ND	ug/L			ND	ug/L			1	EPA 608	
PCB 1232	ND	ug/L			ND	ug/L			1	EPA 608	
PCB 1242	ND	ug/L			ND	ug/L			1	EPA 608	
PCB1248	ND	ug/L			ND	ug/L			1	EPA 608	
PCB 1254	ND	ug/L			ND	ug/L			1	EPA 608	
PCB 1260	ND	ug/L			ND	ug/L			1	EPA 608	
PCB Total3	ND	ug/L			ND	ug/L			1	EPA 608	
Aldrin	<0.05	ug/L			<0.05	ug/L			1	EPA 608	
Mirex	<0.05	ug/L			<0.05	ug/L			1	EPA 608	
Chlordane	ND	ug/L			ND	ug/L			1	EPA 608	
DDD	<0.05	ug/L			<0.05	ug/L			1	EPA 608	
DDE	<0.05	ug/L			<0.05	ug/L			1	EPA 608	
DDT	<0.05	ug/L			<0.05	ug/L			1	EPA 608	
Diedrin	<0.05	ug/L			<0.05	ug/L			1	EPA 608	
Endrin	<0.05	ug/L			<0.05	ug/L			1	EPA 608	
Heptachlor	<0.05	ug/L			<0.05	ug/L			2	EPA 608	

FACILITY NAME AND PERMIT NUMBER:
RICHMOND WWTP VA 0063177

Form Approved 1/14/99
OMB Number 2040-0086

RICHMOND WWTP VA 0063177

Outfall number: 001 (Complete once for each outfall discharging effluent to waters of the United States.)

[illegible]

Richmond WWTP
VPDES Permit #VA0063177
Outfall No. 001
Permit Reissuance Application

**FORM 2A - PART E:
TOXICITY TESTING DATA**

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

Form Approved 1/14/99
OMB Number 2040-0088**SUPPLEMENTAL APPLICATION INFORMATION****PART E. TOXICITY TESTING DATA**

POTWs meeting one or more of the following criteria must provide the results of whole effluent toxicity tests for acute or chronic toxicity for each of the facility's discharge points: 1) POTWs with a design flow rate greater than or equal to 1.0 mgd; 2) POTWs with a pretreatment program (or of those that are required to have one under 40 CFR Part 403); or 3) POTWs required by the permitting authority to submit data for these parameters.

- At a minimum, these results must include quarterly testing for a 12-month period within the past 1 year using multiple species (minimum of two species), or the results from four tests performed at least annually in the four and one-half years prior to the application, provided the results show no appreciable toxicity and testing for acute and/or chronic toxicity, depending on the range of receiving water dilution. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136.
- In addition, submit the results of any other whole effluent toxicity tests from the past four and one-half years. If a whole effluent toxicity test conducted during the past four and one-half years revealed toxicity, provide any information on the cause of the toxicity or any results of a toxicity reduction evaluation, if one was conducted.
- If you have already submitted any of the information requested in Part E, you need not submit it again. Rather, provide the information requested in question E.4 for previously submitted information. If EPA methods were not used, report the reasons for using alternate methods. If test summaries are available that contain all of the information requested below, they may be submitted in place of Part E.

If no biomonitoring data is required, do not complete Part E. Refer to the Application Overview for directions on which other sections of the form to complete.

E.1. Required Tests.

Indicate the number of whole effluent toxicity tests conducted in the past four and one-half years.

9 chronic 8 acute

E.2. Individual Test Data. Complete the following chart for each whole effluent toxicity test conducted in the last four and one-half years. Allow one column per test (where each species constitutes a test). Copy this page if more than three tests are being reported.

Refer to Question E.4. (below)

Test number:

Test number:

Test number:

a. Test information.

Test species & test method number			
Age at initiation of test			
Outfall number			
Dates sample collected			
Date test started			
Duration			

b. Give toxicity test methods followed.

Manual title			
Edition number and year of publication			
Page number(s)			

c. Give the sample collection method(s) used. For multiple grab samples, indicate the number of grab samples used.

24-Hour composite			
Grab			

d. Indicate where the sample was taken in relation to disinfection. (Check all that apply for each)

Before disinfection			
After disinfection			
After dechlorination			

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

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Test number: _____

Test number: _____

Test number: _____

e. Describe the point in the treatment process at which the sample was collected.

Sample was collected:

f. For each test, include whether the test was intended to assess chronic toxicity, acute toxicity, or both.

Chronic toxicity

Acute toxicity

g. Provide the type of test performed.

Static

Static-renewal

Flow-through

h. source of dilution water. If laboratory water, specify type; if receiving water, specify source.

Laboratory water

Receiving water

i. Type of dilution water. If salt water, specify "natural" or type of artificial sea salts or brine used.

Fresh water

Salt water

j. Give the percentage effluent used for all concentrations in the test series.

k. Parameters measured during the test. (State whether parameter meets test method specifications)

pH

Salinity

Temperature

Ammonia

Dissolved oxygen

l. Test Results.

Acute:

Percentage survival in 100% effluent

LC₅₀

95% C.I.

Control percent survival

Other (describe)

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Chronic:

NOEC	%	%	%
IC ₂₅	%	%	%
Control percent survival	%	%	%
Other (describe)			

m. Quality Control/Quality Assurance.

Is reference toxicant test within			
Is reference toxicant test within acceptable bounds?			
What date was reference toxicant test run (MM/DD/YYYY)?			
Other (describe)			

E.3. Toxicity Reduction Evaluation. Is the treatment works involved in a Toxicity Reduction Evaluation?

_____ Yes ☒ No If yes, describe: _____

E.4. Summary of submitted Biomonitoring Test Information. If you have submitted biomonitoring test information, or information regarding the cause of toxicity, within the past four and one-half, provide the dates the information was submitted to the permitting authority and a summary of the results.

Date submitted: See Supplement/Table E-1 (MM/DD/YYYY)

Summary of results: (see Instructions)

END OF PART E.

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM
2A YOU MUST COMPLETE.

City of Richmond, Virginia
Department of Public Utilities
Richmond Wastewater Treatment Plant
VPDES Permit: VA0063177
Outfall 001

Table E1
WET Testing Performed since Last Permit Reissuance

Date of Test	Acute Test				Chronic Test			
	Invertebrate		Vertebrate		Invertebrate		Vertebrate	
	C. dubia		P. promelas		C. dubia		P. promelas	
	LC50%	TUa	LC50%	TUa	LC50%	TUc	LC50%	T
1/19/03	>100%	<1	>100%	<1	1/22/02	100%	1	100%
11/22/03	>100%	<1	>100%	<1	1/21/03	100%	1	100%
1/16/05	>100%	<1	>100%	<1	2/03/04	50%	2	100%
5/13/05	>100%	<1	>100%	<1	1/19/05	100%	1	100%
3/05/06	>100%	<1	>100%	<1	5/17/05	100%	1	100%
2/02/07	>100%	<1	>100%	<1	3/08/06	100%	1	100%
2/01/08	>100%	<1	>100%	<1	2/06/07	100%	1	100%
1/23/09	>100%	<1	>100%	<1	2/05/08	100%	1	100%
					1/27/09	100%	1	100%

Richmond WWTP
VPDES Permit #VA0063177
Outfall No. 001
Permit Reissuance Application

**FORM 2A - PART F:
INDUSTRIAL USER DISCHARGES AND
RCRA/CERCLA WASTES**

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

PART F. INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

All treatment works receiving discharges from significant industrial users or which receive RCRA, CERCLA, or other remedial wastes must complete Part F.

GENERAL INFORMATION:

- F.1. Pretreatment Program. Does the treatment works have, or is it subject to, an approved pretreatment program? ☒ Yes ☐ No
- F.2. Number of Significant Industrial Users (SIUs) and Categorical Industrial Users (CIUs). Provide the number of each of the following types of industrial users that discharge to the treatment works.
- | | | |
|------------------------------------|-----------|----------------------------|
| a. Number of non-categorical SIUs. | <u>38</u> | (See Supplement No. 2A-F1) |
| b. Number of CIUs. | <u>15</u> | (See Supplement No. 2A-F2) |

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

- F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: 623 Landfill, Inc

Mailing Address: 2415 Grenoble Road

Richmond, Virginia 23294

- F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Landfill Leachate

- F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Landfill rainwater

Raw material(s): _____

- F.6. Flow Rate.

- a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

175,000 gpd (☐ continuous or ☒ intermittent)

- b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

0 gpd (☐ continuous or ☐ intermittent)

- F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

- a. Local limits ☒ Yes ☐ No
b. Categorical pretreatment standards ☐ Yes ☒ No

If subject to categorical pretreatment standards, which category and subcategory?

- F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

Yes ☒ No ☐ If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

RCRA HAZARDOUS WASTE RECEIVED BY TRUCK, RAIL, OR DEDICATED PIPELINE:

F.9. RCRA Waste. Does the treatment works receive or has it in the past three years received RCRA hazardous waste by truck, rail, or dedicated pipe?

___ Yes X No (go to F.12.)

F.10. Waste Transport. Method by which RCRA waste is received (check all that apply): ___ Truck ___ Rail ___ Dedicated Pipe

F.11. Waste Description. Give EPA hazardous waste number and amount (volume or mass, specify units).

EPA Hazardous Waste Number

Amount

Units

CERCLA (SUPERFUND) WASTEWATER, RCRA REMEDIATION/CORRECTIVE ACTION WASTEWATER, AND OTHER REMEDIAL ACTIVITY WASTEWATER:

F.12. Remediation Waste. Does the treatment works currently (or has it been notified that it will) receive waste from remedial activities?

___ Yes (complete F.13 through F.15.) X No

Provide a list of sites and the requested information (F.13 - F.15.) for each current and future site.

F.13. Waste Origin. Describe the site and type of facility at which the CERCLA/RCRA/or other remedial waste originates (or is expected to originate in the next five years).

F.14. Pollutants. List the hazardous constituents that are received (or are expected to be received). Include data on volume and concentration, if known. (Attach additional sheets if necessary).

F.15. Waste Treatment.

a. Is this waste treated (or will it be treated) prior to entering the treatment works?

___ Yes ___ No

If yes, describe the treatment (provide information about the removal efficiency):

b. Is the discharge (or will the discharge be) continuous or intermittent?

___ Continuous ___ Intermittent If intermittent, describe discharge schedule.

END OF PART F.

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Afton Chemical Corporation

Mailing Address: 500 Spring Street
Richmond, Virginia 23219

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Laboratory wastewater, engine wash-down wastewater, cooling tower and boiler blowdown.

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Acids & bases, mop water, cooling tower chemicals and surfactants.

Raw material(s): N/A

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

87668 gpd (continuous or X intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

8400 gpd (continuous or X intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes No

b. Categorical pretreatment standards Yes X No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

 Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Alloy Polymers, Inc.

Mailing Address: 3310 Deepwater Terminal Road
Richmond, Virginia 23234

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Devolatilized, extruded powder and resins which produce plastic pellets. Cooling water and non-contact cooling water.

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Nylon blend, polymer blends

Raw material(s): Nylon, polypropylene, silica, fiberglass

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

279257 gpd (☒ continuous or ☐ intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

2340 gpd (☐ continuous or ☒ intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits ☒ Yes ☐ No

b. Categorical pretreatment standards ☐ Yes ☒ No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

☐ Yes ☒ No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Altadis U.S.A.

Mailing Address: 600 Perdue Avenue
Richmond, Virginia 23224

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Equipment wash-down from tobacco mixing vats, boiler, air wash, cooling tower and regeneration blow-downs.

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Smoking tobaccos

Raw material(s): Tobacco, casing, flavoring

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

11966 gpd (☐ continuous or ☒ intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

900 gpd (☐ continuous or ☒ intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits ☒ Yes ☐ No

b. Categorical pretreatment standards ☐ Yes ☒ No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

☐ Yes ☒ No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Atlantic Corrugated Box Co., Inc.

Mailing Address: 1701 Ruffin Road

Richmond, Virginia 23234

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Manufacturing of corrugated sheets into boxes. Adhesives, water based inks and press wash water.

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Corrugated boxes

Raw material(s): Flexo inks

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

215475 gpd (☒ continuous or ☐ intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

600 gpd (☐ continuous or ☒ intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits ☒ Yes ☐ No

b. Categorical pretreatment standards ☐ Yes ☒ No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

☐ Yes ☒ No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: BP Products-North America

Mailing Address: 1636 Commerce Road
Richmond, Virginia 23224

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Facility stormwater discharges from petroleum products storage tanks' dikes.

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Transfer Station of petroleum products

Raw material(s): Gasoline, Distillates, Fuel Additives

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

50 gpd (continuous or X intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

0 gpd (continuous or X intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes No

b. Categorical pretreatment standards Yes X No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

 Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Carpenter Company

Mailing Address: 2400 Jefferson Davis Highway
Richmond, Virginia 23234

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Process wastewater from pretreatment of non-woven fiber line, continuous bonded foam line and condensate from steam used to heat bonded foam.

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Virgin Foam, bonded foam

Raw material(s): Polyol, toluene diisocyanate, ground foam

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

70076 gpd (X continuous or _____ intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

4200 gpd (_____ continuous or X intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes _____ No

b. Categorical pretreatment standards _____ Yes X No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Carter Printing Company

Mailing Address: 2007 Hamilton Street
Richmond, Virginia 23230

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Commercial Offset Printing, Film and offset plate processing

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Printed material

Raw material(s): Film(plates), Ink, paper

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

4977 gpd (continuous or X intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

3810 gpd (continuous or X intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes No

b. Categorical pretreatment standards Yes X No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

 Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Cavalier Inks and Coatings

Mailing Address: 2807 Transport Street
Richmond, Virginia 23224

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Non-contact cooling water

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Solvent & water based printing inks

Raw material(s): Pigments, resins, solvents, additives

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

11429 gpd (continuous or X intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

240 gpd (continuous or X intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes No

b. Categorical pretreatment standards Yes X No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

 Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Citgo Petroleum Corporation

Mailing Address: Third & Maury Streets
Richmond, Virginia 23224

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Stormwater runoff from bulk petroleum storage tanks.

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Transfer Station of petroleum products

Raw material(s): Gasoline, Distillates, Fuel Additives

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

7995 gpd (continuous or X intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

0 gpd (continuous or intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes No

b. Categorical pretreatment standards Yes X No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

 Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: City of Richmond's Water Purification Plant

Mailing Address: 3920 Douglasdale Road
Richmond, Virginia 23221

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

City of Richmond's water purification and supply utility. Alum sludge from the sludge lagoon dredge system.

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Zinc orthophosphate, ammonia, aluminum, copper sulfate, lime, fluoride, chloride, non-ionic polymer, sodium hydroxide, potassium permanganate.

Raw material(s): Water

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

5558 gpd (continuous or X intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

720 gpd (continuous or X intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes No

b. Categorical pretreatment standards Yes X No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

 Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: CSX Transportation Inc.

Mailing Address: 500 Water Street-J275
Jacksonville, Florida 32202

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Locomotive fueling, equipment and parts washing.

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): N/A

Raw material(s): Petroleum & diesel fuel.

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

6278 gpd (continuous or X intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

0 gpd (continuous or intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes No

b. Categorical pretreatment standards Yes X No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

 Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Department of Forensic Science (Commonwealth of Virginia)

Mailing Address: Biotech Two- 700 North Fifth Street
Richmond, Virginia 23219

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Forensic laboratory services, medicolegal death investigations, autopsies etc.

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): N/A

Raw material(s): N/A

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

7560 gpd (continuous or X intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

7500 gpd (continuous or X intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes No

b. Categorical pretreatment standards Yes X No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

 Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Domestic Uniform Rental

Mailing Address: 1321 Oliver Hill Way
Richmond, Virginia 23219

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Industrial laundry discharge from DAF system.

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Clean laundry, bleach, oxalic acid, anit-chlor, polymers, H2SO4, lime Al sulfate, boiler chemicals, Sodium bentonite

Raw material(s): N/A

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

42803 gpd (X continuous or intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

1080 gpd (continuous or X intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes No

b. Categorical pretreatment standards Yes X No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

 Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Duro Bag Manufacturing Company

Mailing Address: 2801 Cofer Road
Richmond, Virginia 23224

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Bag converting plant via starch paste adhesive production, water base flexographic printing.

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Retail paper bags

Raw material(s): Kraft/Bleach paper, flexographic ink, starch and adhesives

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

19436 gpd (continuous or X intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

4500 gpd (continuous or X intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes No

b. Categorical pretreatment standards Yes X No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

 Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: First Energy Corporation

Mailing Address: 200 Maury Street
Richmond, Virginia 23218

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Stormwater runoff from bulk petroleum storage tanks.

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Transfer Station of petroleum products

Raw material(s): Gasoline, Distillates, Fuel Additives

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

10000 gpd (continuous or X intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

0 gpd (continuous or X intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes No

b. Categorical pretreatment standards Yes X No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

 Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Greyhound Lines, Inc.

Mailing Address: 350 North St. Paul MS 0084
Dallas, TX 75042

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Maintenance and cleaning activities associated with bus fleet

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): N/A

Raw material(s): Oil, Antifreeze, Paint, Soap and Solvents

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

4778 gpd (continuous or X intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

1500 gpd (continuous or X intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes No

b. Categorical pretreatment standards Yes X No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

 Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Handcraft Services

Mailing Address: 1501 Roseneath Road
Richmond, Virginia 23230

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Healthcare laundry, boiler blowdown

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Clean laundry service

Raw material(s): N/A

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

34072 gpd (continuous or X intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

4500 gpd (continuous or X intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes No

b. Categorical pretreatment standards Yes X No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

 Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: International Paper

Mailing Address: 2811 Cofer Road

Richmond, Virginia 23224

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Dye from automatic washer boiler and compressor blow-down and adhesive disposal.

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Manufacturing and conversion of corrugated board

Raw material(s): Kraft paper, starch

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

7328 gpd (☐ continuous or ☒ intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

2348 gpd (☐ continuous or ☒ intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits ☒ Yes ☐ No

b. Categorical pretreatment standards ☐ Yes ☒ No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

☐ Yes ☒ No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Land-O-Sun, LLC (Pet Dairy) Formerly Supervalu

Mailing Address: 1505 Robin Hood Road
Richmond, Virginia 23220

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Process wastewater from pasteurization of raw milk and juices receiving operations.

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Milk, cream, juice

Raw material(s): Sugar, water, raw milk, juice

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

90249 gpd (X continuous or _____ intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

3450 gpd (_____ continuous or X intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes _____ No

b. Categorical pretreatment standards _____ Yes X No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Magellan Terminals Holdings, L.P. - Richmond Terminal

Mailing Address: 204 East 1st Street
Richmond, Virginia 23224

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Refined product storage terminal

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): gasoline, diesel, jet fuel

Raw material(s): N/A

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

34187 gpd (continuous or X intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

0 gpd (continuous or X intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes No

b. Categorical pretreatment standards Yes X No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

 Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Packaging Corporation of America

Mailing Address: 2000 Jefferson Davis Highway
Richmond, Virginia 23224

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Formation of corrugated board, printing press wash-up water, boiler blowdown.

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Corrugated sheets

Raw material(s): Kraft paper, corn starch sodium hydroxide, water-based flexographic inks, water-based adhesives.

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

33947 gpd (continuous or X intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

2880 gpd (continuous or X intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes No

b. Categorical pretreatment standards Yes X No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

 Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Philip Morris- Blended Leaf

Mailing Address: P.O. Box 26603
Richmond, Virginia 23234

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Tobacco by-products grinding, drying, blending and flavoring. Cooling towers, air washers, ammonia tanks, slurry mixers, water softener, refiners, scrubbers, oil & water separator, and boiler and condensate blowdown.

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Reconstituted blended leaf, ground tobacco.

Raw material(s): Tobacco, binder, flavors

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

53523 gpd (X continuous or _____ intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

1530 gpd (_____ continuous or X intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes _____ No

b. Categorical pretreatment standards _____ Yes X No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

_____ Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Philip Morris Manufacturing Center Complex

Mailing Address: P.O. Box 26603
Richmond, Virginia 23261

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Processed tobacco, steam boiler, equipment washdown, cooling tower, cigarette manufacturing.

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Cigarettes, propylene glycol, tobacco glycerin, flavoring.

Raw material(s): Tobacco, flavorings

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

594690 gpd (☒ continuous or ☐ intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

63450 gpd (☐ continuous or ☒ intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits ☒ Yes ☐ No

b. Categorical pretreatment standards ☐ Yes ☒ No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

☐ Yes ☒ No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: River City Linens

Mailing Address: 3406 West Leigh Street
Richmond, Virginia 23230

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Commercial lauderer

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Clean linen for nursing homes, hotels, and hospitals

Raw material(s): N/A

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

53503 gpd (X continuous or _____ intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

1500 gpd (_____ continuous or X intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes _____ No

b. Categorical pretreatment standards _____ Yes X No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: TransMontaigne Terminating

Mailing Address: 200 Mansell Court East, Suite 600
Roswell, GA 30076

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Bulk petroleum storage stormwater runoff

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Bulk petroleum products

Raw material(s): N/A

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

89825 gpd (continuous or X intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

0 gpd (continuous or intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes No

b. Categorical pretreatment standards Yes X No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

 Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Reynolds Metal (Alcoa)

Mailing Address: 7th & Bainbridge Streets
Richmond, Virginia 23224

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Wastewater from roll grinding units-pretreated through batch process and ultra-filtration system. Non-contact cooling water from annealing process. Process water from converting process (laminating, coating, gluing, gravure painting, finished goods, raw product storage and lacquer mixing) cooling towers.

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Roll grinding fluids, boiler chemicals, cooling tower chemicals.

Raw material(s): N/A

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

77952 gpd (X continuous or intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

14700 gpd (continuous or X intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes No

b. Categorical pretreatment standards X Yes No

If subject to categorical pretreatment standards, which category and subcategory?

40 CFR Part 467 Aluminum Forming Category, Subpart A - Rolling with Heat Oils; Core Without an Annealing Furnace Scrubber.

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

 Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Total Cleaning Power

Mailing Address: 2212 Deepwater Terminal Road

Richmond, Virginia 23234

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Wastewater from the truck washing operation and boiler blowdown water flows to a pretreatment unit consisting of oil and grease removal, pH adjustment and DAF solids removal.

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Butyl cellosolve, NaOH, H2SO4, HCl, aluminum brightener, poly-tergent.

Raw material(s): N/A

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

19965 gpd (☐ continuous or ☒ intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

480 gpd (☐ continuous or ☒ intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits ☒ Yes ☐ No

b. Categorical pretreatment standards ☒ Yes ☐ No

If subject to categorical pretreatment standards, which category and subcategory?

40 CFR Part 437 Centralized Waste Treatment Point Source.

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

☐ Yes ☒ No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Specialty Finishers, Inc.

Mailing Address: 311 Tynick Street
Richmond, Virginia 23224

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Excess caustic wash water and rinse water from the nickel plating and anodizing process.

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Ammonium hydroxide, Chromium, Acetic Acid, HNO₃, H₃NO₃, HCl, Nickel, NaOH, H₂SO₄

Raw material(s): N/A

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

343 gpd (continuous or X intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

330 gpd (continuous or X intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes No

b. Categorical pretreatment standards X Yes No

If subject to categorical pretreatment standards, which category and subcategory?

40 CFR Part 433 subparts A - Metal Finishing Subcategory

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

 Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Sonoco Products Company

Mailing Address: 1850 Commerce Road
Richmond, Virginia 23224

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Recycled industrial wastewater and process wastewater circulated to ponds.

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): NaOH, defoamer, wet resin, poly phosphate, alkaline sizing agent, biocides

Raw material(s): N/A

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

962294 gpd (☒ continuous or ☐ intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

3150 gpd (☐ continuous or ☒ intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits ☒ Yes ☐ No

b. Categorical pretreatment standards ☒ Yes ☐ No

If subject to categorical pretreatment standards, which category and subcategory?

40 CFR Part 430 Subparts E, Paperboard from Wastepaper Subcategory

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

☐ Yes ☒ No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Richmond Metal Finishing

Mailing Address: 506 Maury Street
Richmond, Virginia 23224

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Process wastewater from powder coating with iron phosphate, wash operation, the metal forming and cutting operations.

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): HCl, bleach, metabisulfate, plating metals.

Raw material(s): N/A

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

2632 gpd (continuous or X intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

510 gpd (continuous or X intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes No

b. Categorical pretreatment standards X Yes No

If subject to categorical pretreatment standards, which category and subcategory?

40 CFR Part 433 Subparts A - Metal Finishing Subcategory

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

 Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: RECO Biotechnology

Mailing Address: 710 Hospital Street
Richmond, Virginia 23219

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Petroleum contaminated water is treated by an oil/water separator, pH adjusters, aerated biological treatment and screening.

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Sodium bicarbonate, sulfuric acid, sodium chloride, standard polymers, diammonium phosphate

Raw material(s): N/A

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

148472 gpd (continuous or X intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

1200 gpd (continuous or X intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes No

b. Categorical pretreatment standards X Yes No

If subject to categorical pretreatment standards, which category and subcategory?

40 CFR Part 437 - Centralized Waste Treatment Point Source subpart D - Multiple Wastestreams

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

 Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Production Metal Finishers, Inc.

Mailing Address: 1802 Currie Street
Richmond, Virginia 23220

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Rinse water from plating and cleaning operations.

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Chromic acid, NaOH, H2SO4, Phosphoric acid, copper, sulfate

Raw material(s): N/A

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

2338 gpd (continuous or X intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

180 gpd (continuous or X intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes No

b. Categorical pretreatment standards X Yes No

If subject to categorical pretreatment standards, which category and subcategory?

40 CFR Part 433 Subparts A - Metal Finishing Subcategory

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

 Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Miller Manufacturing Company, Inc.

Mailing Address: P.O. Box 1358
Richmond, Virginia 23218

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Metal fabrications are rinsed after alkaline wash and iron phosphate etch. Filtered rinse water.

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Alkaline bore cleaner, iron phosphate, acid

Raw material(s): N/A

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

4067 gpd (☒ continuous or ☐ intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

720 gpd (☐ continuous or ☒ intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits ☒ Yes ☐ No

b. Categorical pretreatment standards ☒ Yes ☐ No

If subject to categorical pretreatment standards, which category and subcategory?

40 CFR Part 433 subparts A - Metal Finishing Subcategory

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

☐ Yes ☒ No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: House of Silver

Mailing Address: 1813 West Broad Street
Richmond, Virginia 23220

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Rinsate from electroplating, caustic and acid cleaning operations.

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): HCL, H2SO4, HNO3, silver potassium cyanide solution.

Raw material(s): N/A

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

109 gpd (continuous or X intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

90 gpd (continuous or X intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes No

b. Categorical pretreatment standards X Yes No

If subject to categorical pretreatment standards, which category and subcategory?

40 CFR Part 413 Subparts B - Electroplating of Precious Metals Subcategory.

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

 Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Hanlon Plating Company Inc.

Mailing Address: 925 East Fourth Street
Richmond, Virginia 23224

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Batched rinse water from electroplating operation.

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Copper, Zinc, Nickel, brightener.

Raw material(s): N/A

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

2932 gpd (continuous or X intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

210 gpd (continuous or X intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes No

b. Categorical pretreatment standards X Yes No

If subject to categorical pretreatment standards, which category and subcategory?

40 CFR Part 413 Electroplating.

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

 Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Dominion Virginia Power-Bellmeade Power Operations

Mailing Address: 1860 Commerce Road
Richmond, Virginia 23224

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Process wastewater from the neutralization tank floor drainage treated an oil & water separators, blowdown from boilers, cooling tower and steam condensate.

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Caustic soda, ammonium hydroxide, boiler and cooling water chemicals, sulfuric acid sodium bisulfite,

Raw material(s): N/A

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

655826 gpd (continuous or X intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

270 gpd (continuous or X intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes No

b. Categorical pretreatment standards X Yes No

If subject to categorical pretreatment standards, which category and subcategory?

40 CFR Part 423 - Steam Electrical Power Generating Point Source Category

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

 Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Colonial Plating Shop

Mailing Address: 9 South First Street
Richmond, Virginia 23219

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Silver plating process rinsate

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Potassium cyanide, caustic soda, rinsate

Raw material(s): N/A

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

60 gpd (continuous or X intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

90 gpd (continuous or X intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes No

b. Categorical pretreatment standards X Yes No

If subject to categorical pretreatment standards, which category and subcategory?

40 CFR Part 413 - Metal Finishing Subcategory

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

 Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Caraustar (Richmond Paperboard Corporation)

Mailing Address: 111 Hull Street Road
Richmond, Virginia 23224

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Hydropulper process discharges, high density cleaners and float washer.

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Bismarck brown powder, ASA, biocide, polymers, defoamer, boiler chemicals, brown & green liquid dye

Raw material(s): N/A

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

38890 gpd (☒ continuous or ☐ intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

1650 gpd (☐ continuous or ☒ intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits ☒ Yes ☐ No

b. Categorical pretreatment standards ☒ Yes ☐ No

If subject to categorical pretreatment standards, which category and subcategory?

40 CFR Part 430 Subparts E - Paperboard form wastepaper subcategory

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

☐ Yes ☒ No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Brass Beds of Virginia

Mailing Address: 3210 West Marshall Street
Richmond, Virginia 23230

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Batch process wastewater from the phosphoric acid washing of the bed frames.

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Phosphoric Acid, Zinc Alloy

Raw material(s): N/A

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

8367 gpd (continuous or X intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

420 gpd (continuous or X intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes No

b. Categorical pretreatment standards X Yes No

If subject to categorical pretreatment standards, which category and subcategory?

40 CFR Part 433 Subparts A - Metal Finishing Subcategory

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

 Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: APC, Inc.

Mailing Address: 1136-A Hermitage Road
Richmond, Virginia 23220

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Rinse water from cleaning, etching and anodizing processes.

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Nickel, Copper, Chromium, NaOH Acetate, nitric and sulfuric acid, organic dyes.

Raw material(s): N/A

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

6218 gpd (continuous or X intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

60 gpd (continuous or X intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes No

b. Categorical pretreatment standards X Yes No

If subject to categorical pretreatment standards, which category and subcategory?

40CFR Part 413 Subparts A & D - Electroplating of Common Metals Subcategory & Anodizing Subcategory

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

 Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: X-Ray Engineering

Mailing Address: 708 Dawn Street
Richmond, Virginia 23222

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Process rinse water from washing containers associated with fixer and developer solutions.

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Fixer and developer.

Raw material(s): N/A

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

8487 gpd (continuous or X intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

300 gpd (continuous or X intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes No

b. Categorical pretreatment standards Yes X No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

 Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: West End Printing

Mailing Address: 1607 Sherwood Avenue
Richmond, Virginia 23220

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Commercial offset printing operation, air compressor or blowdown

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Meter roll cleaner, solvent inks, fountain solution

Raw material(s): N/A

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

15394 gpd (continuous or X intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

1860 gpd (continuous or X intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes No

b. Categorical pretreatment standards Yes X No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

 Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Waste Management-Maplewood Facility

Mailing Address: 20221 Maplewood Road
Jettersville, Virginia 23083

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Municipal Solid Waste Landfill

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Sanitary Landfill

Raw material(s): N/A

F.6. Flow Rate.

- a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

247300 gpd (continuous or X intermittent)

- b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

0 gpd (continuous or intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

- a. Local limits X Yes No
b. Categorical pretreatment standards Yes X No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

 Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Waste Management-King George Landfill

Mailing Address: 10375 Bullock Lane
King George, Virginia 22485

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Municipal Solid Waste Landfill

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Sanitary Landfill

Raw material(s): N/A

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

203306 gpd (continuous or X intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

0 gpd (continuous or X intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes No

b. Categorical pretreatment standards Yes X No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

 Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Waste Management-Charles City County

Mailing Address: 8000 Chambers Road
Charles City, VA 23030

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Municipal Solid Waste Landfill

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Sanitary Landfill

Raw material(s): N/A

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

175000 gpd (continuous or X intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

0 gpd (continuous or intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes No

b. Categorical pretreatment standards Yes X No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

 Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Waste Management-Brunswick Facility

Mailing Address: 107 Mallard Crossing Road
Lawrenceville, Virginia 23868

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Municipal Solid Waste Landfill

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Sanitary Landfill

Raw material(s): N/A

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

222000 gpd (continuous or X intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

0 gpd (continuous or intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes No

b. Categorical pretreatment standards Yes X No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

 Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Waste Management-Atlantic Waste Disposal Facility

Mailing Address: 3474 Atlantic Lane
Waverly, Virginia 23890

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Municipal Solid Waste Landfill

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Sanitary Landfill

Raw material(s): N/A

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

1445336 gpd (continuous or X intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

0 gpd (continuous or intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes No

b. Categorical pretreatment standards Yes X No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

 Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Virginia Hospital Laundry

Mailing Address: 1601 Oliver Hill Way
Richmond, Virginia 23219

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Industrial laundering of health care and hospital linens.

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Sodium Hydroxide, phosphoric acid, sodium thiosulfate, isopropanol, sodium hypochlorite, methyl bis-2-hydroxyethyl ammonium methyl sulfate

Raw material(s): N/A

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

128900 gpd (☐ continuous or ☒ intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

1800 gpd (☐ continuous or ☒ intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits ☒ Yes ☐ No

b. Categorical pretreatment standards ☐ Yes ☒ No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

☐ Yes ☒ No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: VCU-MCV Steam Plant

Mailing Address: P.O. Box 980166
Richmond, Virginia 23298

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Steam production and distribution. Boiler blow-down, stormwater and softener regeneration.

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Boiler chemicals, solar salt

Raw material(s): N/A

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

84632 gpd (continuous or X intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

540 gpd (continuous or X intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes No

b. Categorical pretreatment standards Yes X No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

 Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Veteran Administration Medical Center

Mailing Address: 1201 Road Rock Blvd
Richmond, Virginia 23249

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

General medical and surgical hospital

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Laundry operations, food service.

Raw material(s): _____

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

211634 gpd (X continuous or _____ intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

930 gpd (_____ continuous or X intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes _____ No

b. Categorical pretreatment standards _____ Yes X No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

____ Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Unifirst Corporation

Mailing Address: 4300 Castlewood Road
Richmond, Virginia 23234

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Industrial laundry process wastewater

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Surfactants, DAF chemicals, caustic acid, bleach

Raw material(s): N/A

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

60796 gpd (continuous or X intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

2460 gpd (continuous or X intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes No

b. Categorical pretreatment standards Yes X No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

 Yes X No If yes, describe each episode.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Upaco Adhesives Inc.

Mailing Address: 4105 Castlewood Road
Richmond, Virginia 23234

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Kettle cleaning water-based adhesive manufacturing area, contact and non-contact cooling water.

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Boiler chemicals, water-based chemicals, latex emulsions.

Raw material(s): N/A

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

34655 gpd (continuous or X intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

750 gpd (continuous or X intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits X Yes No

b. Categorical pretreatment standards Yes X No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

 Yes X No If yes, describe each episode.

Richmond WWTP
VPDES Permit #VA0063177
Outfall No. 001
Permit Reissuance Application

APPENDIX F:
FORM 2A PART F

Additional Information

City of Richmond's Wastewater Treatment Plant
VPDES Permit #VA0063177
Outfall No. 001

Supplement No. 2A-F2

List of Categorical Industrial Users

INDUSTRY	40CFR	SIC/NAICS	EXPIRATION DATE	Permit#
APC, Inc.	413	3471/332813	9/30/2012	2807
Brass Beds of Virginia	433	3471/332813	9/30/2009	1910
Caraustar (Richmond Paperboard)	430	2675/322226	9/30/2010	2228
Colonial Plating Shop	413	3471/332813	1/30/2010	2647
Dominion VA Power	423	4961/221330	12/31/2011	2707
Hanlon Plating	433	3471/332813	7/31/2009	1927
House of Silver, Inc.	413	3471/332813	7/31/2009	1929
Miller Manufacturing Co,	433	3542/337127	3/31/2010	1224
Production Metal Finisher, Inc.	433	3471/332813	9/30/2009	2231
RECO	437	8711/541330	3/31/2010	2450
Reynolds Metals 7 th Street	467	3353/331315	12/31/2011	2728
Richmond Metal Finishing	433	3471/332813	10/31/2010	2387
Sonoco Products Company	430	2611/322110	7/31/2010	2089
Specialty Finishes, Inc.	433	3471/332813	8/1/2010	2087
Total Cleaning Power	442	7699/562998	9/30/2009	1826

Additional Information

City of Richmond's Wastewater Treatment Plant VPDES Permit #VA0063177 Outfall No. 001

Supplement No. 2A-F1

List of Significant Industrial Users

INDUSTRY	SIC/NAICS	EXPIRATION DATE	Permit#
623 Landfill, Inc.	4953/562212	11/30/2011	1666
Afton Chemical Corporation	8734/541380	5/31/2013	1585
Alloy Polymers	3087/325491	7/31/2009	2088
Altadis	2131/312229	7/31/2009	1948
Atlantic Corrugated	2759/323112	9/30/2011	2628
BP Products	5171/424710	10/31/2010	2287
Carpenter Company	2297/313230	7/31/2009	2127
Carter Printing	2752/323110	9/30/2010	1909
Cavalier Ink	2893/325910	9/30/2009	1908
Citgo	5171/424710	4/30/2010	1786
City Water Purification Plant	4941/221310	10/31/2013	1425
CSX Transportation, Inc. Bryan Park	4011/482111	3/31/2009	1827
Department of Forensic Science	8734/8011	4/30/2011	5017
Domestic Uniform Rental	7218/812332	11/30/2013	1366
Duro Bag Mfg. Co.	2674/322224	9/30/2010	2827
First Energy	5171/424710	12/31/2013	2847
Greyhound Lines, Inc.	4131/485210	1/31/2011	2631
Handcraft Services Inc.	7211/812320	9/30/2010	1947
International Paper	2653/322211	9/30/2011	2727
Land-O-Sun, LLC (Pet Dairy)	2026/311511	9/30/2009	2407
Magellan Terminals	5171/424710	12/9/2009	1485
Packaging Corporation of America	2674/322224	7/31/2010	2327
Philip Morris – Blended Leaf	2111/312221	7/31/2010	2148-BL
Philip Morris- Manufacturing Center	2111/312221	7/31/2010	2149-MC
River City Linens	7218/812332	1/31/2010	2427
TransMontaigne	5171/424710	12/31/2012	1020
Unifirst Corporation	7218/812332	10/31/2011	2630
Upaco Adhesives, Inc.	2891/325520	9/30/2009	2229
VCU-MCV Steam Plant	4961/221330	2/28/2011	2487
Veterans Administration	8062/622110	12/31/2010	2388
Virginia Hospital Laundry	7218/812332	7/31/2010	2147
Waste Management-Atlantic Waste	4953/562212	7/31/2011	2629
Waste Management-Brunswick Facility	4953/562212	2/28/2010	2449
Waste Management-Charles City	4953/562212	8/31/2009	2188
Waste Management-King George	4953/562212	2/28/2011	2467
Waste Management-Maplewood	4953/562212	4/30/2009	1906
West End Printing	2752/323110	12/31/2010	2230
X-Ray Engineering	3861/325992	9/31/2010	2167

Richmond WWTP
VPDES Permit #VA0063177
Outfall No. 001
Permit Reissuance Application

FORM 2A - PART G:
COMBINED SEWER SYSTEMS

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP 0063177

Form Approved 1/14/89
OMB Number 2040-0086

SUPPLEMENTAL APPLICATION INFORMATION

PART G. COMBINED SEWER SYSTEMS

If the treatment works has a combined sewer system, complete Part G.

G.1. System Map. Provide a map indicating the following: (may be included with Basic Application Information)

- All CSO discharge points.
- Sensitive use areas potentially affected by CSOs (e.g., beaches, drinking water supplies, shellfish beds, sensitive aquatic ecosystems, and outstanding natural resource waters).
- Waters that support threatened and endangered species potentially affected by CSOs.

G.2. System Diagram. Provide a diagram, either in the map provided in G.1. or on a separate drawing, of the combined sewer collection system that includes the following information:

- Locations of major sewer trunk lines, both combined and separate sanitary.
- Locations of points where separate sanitary sewers feed into the combined sewer system.
- Locations of in-line and off-line storage structures.
- Locations of flow-regulating devices.
- Locations of pump stations.

CSO OUTFALLS:

Complete questions G.3 through G.6 once for each CSO discharge point.

G.3. Description of Outfall.

- Outfall number _____
- Location
(City or town, if applicable) _____ (Zip Code) _____
(County) _____ (State) _____
(Latitude) _____ (Longitude) _____
- Distance from shore (if applicable) _____ ft.
- Depth below surface (if applicable) _____ ft.
- Which of the following were monitored during the last year for this CSO?
____ Rainfall ____ CSO pollutant concentrations ____ CSO frequency
____ CSO flow volume ____ Receiving water quality
- How many storm events were monitored during the last year? _____

G.4. CSO Events.

- Give the number of CSO events in the last year.
_____ events (____ actual or ____ approx.)
- Give the average duration per CSO event.
_____ hours (____ actual or ____ approx.)

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- c. Give the average volume per CSO event.

_____ million gallons (_____ actual or _____ approx.)

- d. Give the minimum rainfall that caused a CSO event in the last year.

_____ inches of rainfall

G.5. Description of Receiving Waters.

- a. Name of receiving water: _____

- b. Name of watershed/river/stream system: _____

United States Soil Conservation Service 14-digit watershed code (if known): _____

- c. Name of State Management/River Basin: _____

United States Geological Survey 8-digit hydrologic cataloging unit code (if known): _____

G.6. CSO Operations.

Describe any known water quality impacts on the receiving water caused by this CSO (e.g., permanent or intermittent beach closings, permanent or intermittent shell fish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable State water quality standard).

END OF PART G.

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE.

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CSO OUTFALLS:

Complete questions G.3 through G.8 once for each CSO discharge point.

G.3. Description of Outfall.

a. Outfall Number 002 (Orleans)

b. Outfall Location	<u>Richmond</u>	<u>23231</u>
	(City or town, if applicable)	(Zip Code)
	<u>N/A</u>	<u>Virginia</u>
	(County)	(State)
	<u>N 37deg 31 min 3.72 sec</u>	<u>W 77 deg 24 min 59 sec</u>
	(Latitude)	(Longitude)

c. Distance from shore (if applicable) N/A ft.d. Depth below Surface (if applicable) N/A ft.

e. Which of the following were monitored during the last year for this CSO?

<input type="checkbox"/> Rainfall	<input type="checkbox"/> CSO pollutant concentrations	<input type="checkbox"/> CSO frequency
<input type="checkbox"/> CSO flow volume	<input type="checkbox"/> Receiving water quality	

f. How many storm events were monitored during the last year? 0

G.4. CSO Events.

a. Give the number of CSO events in the last year.
28 events (☐ actual or ☒ approx.)b. Give the average duration per CSO event.
2.74 hours (☐ actual or ☒ approx.)c. Give the average volume per CSO event.
0.24 million gallons (☐ actual or ☒ approx.)d. Give the minimum rainfall that caused a CSO event in the last year.
0.2 inches of rainfall.

G.5. Description of Receiving Waters.

a. Name of receiving water: James Riverb. Name of watershed/river/stream system: Middle James - WillisUnited States Soil Conservation 14-digit watershed code (if known): 00208020500H39c. Name of State Management/River Basin: James RiverUnited States Geological Survey 8-digit hydrologic cataloging unit code (if known): 02080500

G.6. CSO Operations.

Describe any known quality impacts on the receiving water caused by this CSO (e.g. permanent or intermittent beach closings, permanent or intermittent shell fish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable State water quality standard).

CSO discharges cause short duration episodic exceedances of the bacteriological water quality standards.

END OF PART G.

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE

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CSO OUTFALLS:

Complete questions G.3 through G.8 once for each CSO discharge point.

G.3. Description of Outfall.

- a. Outfall Number 003 (Nicholson Street)
- b. Outfall Location Richmond 23231
(City or town, if applicable) (Zip Code)
N/A Virginia
(County) (State)
N 37deg 31 min 13.35 sec W 77 deg 25 min .029 sec
(Latitude) (Longitude)
- c. Distance from shore (if applicable) N/A ft.
- d. Depth below Surface (if applicable) N/A ft.
- e. Which of the following were monitored during the last year for this CSO?
- | | | |
|--|---|--|
| <input type="checkbox"/> Rainfall | <input type="checkbox"/> CSO pollutant concentrations | <input type="checkbox"/> CSO frequency |
| <input type="checkbox"/> CSO flow volume | <input type="checkbox"/> Receiving water quality | |
- f. How many storm events were monitored during the last year? 0

G.4. CSO Events.

- a. Give the number of CSO events in the last year.
29 events (☐ actual or ☒ approx.)
- b. Give the average duration per CSO event.
2.46 hours (☐ actual or ☒ approx.)
- c. Give the average volume per CSO event.
0.16 million gallons (☐ actual or ☒ approx.)
- d. Give the minimum rainfall that caused a CSO event in the last year.
0.2 inches of rainfall.

G.5. Description of Receiving Waters.

- a. Name of receiving water: James River
- b. Name of watershed/river/stream system: Middle James - Willis
United States Soil Conservation 14-digit watershed code (if known): 00208020500H39
- c. Name of State Management/River Basin: James River
United States Geological Survey 8-digit hydrologic cataloging unit code (if known): 02080500

G.6. CSO Operations.

Describe any known quality impacts on the receiving water caused by this CSO (e.g. permanent or intermittent beach closings, permanent or intermittent shell fish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable State water quality standard).

CSO discharges cause short duration episodic exceedances of the bacteriological water quality standards.

END OF PART G.

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM
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CSO OUTFALLS:

Complete questions G.3 through G.8 once for each CSO discharge point.

G.3. Description of Outfall.

a. Outfall Number 004 (Bloody Run)

b. Outfall Location	<u>Richmond</u>	<u>23231</u>
	(City or town, if applicable)	(Zip Code)
	<u>N/A</u>	<u>Virginia</u>
	(County)	(State)
	<u>N 37deg 31 min 21.33 sec</u>	<u>W 77 deg 24 min 57.47 sec</u>
	(Latitude)	(Longitude)

c. Distance from shore (if applicable) N/A ft.d. Depth below Surface (if applicable) N/A ft.

e. Which of the following were monitored during the last year for this CSO?

<input type="checkbox"/> Rainfall	<input type="checkbox"/> CSO pollutant concentrations	<input type="checkbox"/> CSO frequency
<input type="checkbox"/> CSO flow volume	<input type="checkbox"/> Receiving water quality	

f. How many storm events were monitored during the last year? 0

G.4. CSO Events.

a. Give the number of CSO events in the last year.
33 events (☐ actual or ☒ approx.)b. Give the average duration per CSO event.
3.34 hours (☐ actual or ☒ approx.)c. Give the average volume per CSO event.
0.73 million gallons (☐ actual or ☒ approx.)d. Give the minimum rainfall that caused a CSO event in the last year.
0.2 inches of rainfall.

G.5. Description of Receiving Waters.

a. Name of receiving water: Gillies Creekb. Name of watershed/river/stream system: Middle James - WillisUnited States Soil Conservation 14-digit watershed code (if known): 00208020500H39c. Name of State Management/River Basin: James RiverUnited States Geological Survey 8-digit hydrologic cataloging unit code (if known): 02080500

G.6. CSO Operations.

Describe any known quality impacts on the receiving water caused by this CSO (e.g. permanent or intermittent beach closings, permanent or intermittent shell fish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable State water quality standard).

CSO discharges cause short duration episodic exceedances of the bacteriological water quality standards.

END OF PART G

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE

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CSO OUTFALLS:

Complete questions G.3 through G.8 once for each CSO discharge point.

G.3. Description of Outfall.

a. Outfall Number 005 (Peach street)b. Outfall Location Richmond 23231

(City or town, if applicable) (Zip Code)

N/A Virginia

(County) (State)

N 37deg 31 min 30.82 sec W 77 deg 25 min 13.93 sec

(Latitude) (Longitude)

c. Distance from shore (if applicable) N/A ft.d. Depth below Surface (if applicable) N/A ft.

e. Which of the following were monitored during the last year for this CSO?

☐ Rainfall ☐ CSO pollutant concentrations ☐ CSO frequency
☐ CSO flow volume ☐ Receiving water quality

f. How many storm events were monitored during the last year? 0

G.4. CSO Events.

a. Give the number of CSO events in the last year.

4 events (☐ actual or ☒ approx.)

b. Give the average duration per CSO event.

2.5 hours (☐ actual or ☒ approx.)

c. Give the average volume per CSO event.

0.13 million gallons (☐ actual or ☒ approx.)

d. Give the minimum rainfall that caused a CSO event in the last year.

0.9 inches of rainfall.

G.5. Description of Receiving Waters.

a. Name of receiving water: James Riverb. Name of watershed/river/stream system: Middle James - WillisUnited States Soil Conservation 14-digit watershed code (if known): 00208020500H39c. Name of State Management/River Basin: James RiverUnited States Geological Survey 8-digit hydrologic cataloging unit code (if known): 02080500

G.6. CSO Operations.

Describe any known quality impacts on the receiving water caused by this CSO (e.g. permanent or intermittent beach closings, permanent or intermittent shell fish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable State water quality standard).

CSO discharges cause short duration episodic exceedances of the bacteriological water quality standards.

END OF PART G

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM

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CSO OUTFALLS:

Complete questions G.3 through G.8 once for each CSO discharge point.

G.3. Description of Outfall.

a. Outfall Number 006 (Shockoe Creek)b. Outfall Location Richmond 23219

(City or town, if applicable)

(Zip Code)

N/AVirginia

(County)

(State)

N 37 deg 31 min 51.55 secW 77 deg 25 min 54.16 sec

(Latitude)

(Longitude)

c. Distance from shore (if applicable) N/A ft.d. Depth below Surface (if applicable) N/A ft.

e. Which of the following were monitored during the last year for this CSO?

☐ Rainfall☐ CSO pollutant concentrations☐ CSO frequency☐ CSO flow volume☐ Receiving water qualityf. How many storm events were monitored during the last year? 0

G.4. CSO Events.

a. Give the number of CSO events in the last year.
59 events (☐ actual or ☒ approx.)b. Give the average duration per CSO event.
10.16 hours (☐ actual or ☒ approx.)c. Give the average volume per CSO event.
54.6 million gallons (☐ actual or ☒ approx.)d. Give the minimum rainfall that caused a CSO event in the last year.
0.1 inches of rainfall.

G.5. Description of Receiving Waters.

a. Name of receiving water: James Riverb. Name of watershed/river/stream system: Middle James - WillisUnited States Soil Conservation 14-digit watershed code (if known): 00208020500H39c. Name of State Management/River Basin: James RiverUnited States Geological Survey 8-digit hydrologic cataloging unit code (if known): 02080500

G.6. CSO Operations.

Describe any known quality impacts on the receiving water caused by this CSO (e.g. permanent or intermittent beach closings, permanent or intermittent shell fish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable State water quality standard).

CSO discharges cause short duration episodic exceedances of the bacteriological water quality standards.

END OF PART G

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM

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CSO OUTFALLS:

Complete questions G.3 through G.8 once for each CSO discharge point.

G.3. Description of Outfall.

a. Outfall Number 007 (Byrd Street)

b. Outfall Location	<u>Richmond</u>	<u>23219</u>
	(City or town, if applicable)	(Zip Code)
	<u>N/A</u>	<u>Virginia</u>
	(County)	(State)
	<u>N 37 deg 32 min 1.83 sec</u>	<u>W 77 deg 26 min 10.68 sec</u>
	(Latitude)	(Longitude)

c. Distance from shore (if applicable) N/A ft.d. Depth below Surface (if applicable) N/A ft.

e. Which of the following were monitored during the last year for this CSO?

<input type="checkbox"/> Rainfall	<input type="checkbox"/> CSO pollutant concentrations	<input type="checkbox"/> CSO frequency
<input type="checkbox"/> CSO flow volume	<input type="checkbox"/> Receiving water quality	

f. How many storm events were monitored during the last year? 0

G.4. CSO Events.

a. Give the number of CSO events in the last year.
2 events (☐ actual or ☒ approx.)b. Give the average duration per CSO event.
2 hours (☐ actual or ☒ approx.)c. Give the average volume per CSO event.
0.03 million gallons (☐ actual or ☒ approx.)d. Give the minimum rainfall that caused a CSO event in the last year.
1.2 inches of rainfall.

G.5. Description of Receiving Waters.

a. Name of receiving water: James Riverb. Name of watershed/river/stream system: Middle James - WillisUnited States Soil Conservation 14-digit watershed code (if known): 00208020500H39c. Name of State Management/River Basin: James RiverUnited States Geological Survey 8-digit hydrologic cataloging unit code (if known): 02080500

G.6. CSO Operations.

Describe any known quality impacts on the receiving water caused by this CSO (e.g. permanent or intermittent beach closings, permanent or intermittent shell fish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable State water quality standard).

CSO discharges cause short duration episodic exceedances of the bacteriological water quality standards.

END OF PART G.

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM
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CSO OUTFALLS:

Complete questions G.3 through G.8 once for each CSO discharge point.

G.3. Description of Outfall.

a. Outfall Number 009 (7th Street)

b. Outfall Location	<u>Richmond</u>	<u>23219</u>
	(City or town, if applicable)	(Zip Code)
	<u>N/A</u>	<u>Virginia</u>
	(County)	(State)
	<u>N 37deg 32 min 6.19 sec</u>	<u>W 77 deg 26 min 33.01 sec</u>
	(Latitude)	(Longitude)

c. Distance from shore (if applicable) N/A ft.d. Depth below Surface (if applicable) N/A ft.

e. Which of the following were monitored during the last year for this CSO?

<input type="checkbox"/> Rainfall	<input type="checkbox"/> CSO pollutant concentrations	<input type="checkbox"/> CSO frequency
<input type="checkbox"/> CSO flow volume	<input type="checkbox"/> Receiving water quality	

f. How many storm events were monitored during the last year? 0

G.4. CSO Events.

a. Give the number of CSO events in the last year.
0 events (☐ actual or ☒ approx.)b. Give the average duration per CSO event.
0 hours (☐ actual or ☒ approx.)c. Give the average volume per CSO event.
0 million gallons (☐ actual or ☒ approx.)d. Give the minimum rainfall that caused a CSO event in the last year.
N/A inches of rainfall.

G.5. Description of Receiving Waters.

a. Name of receiving water: Haxall Canalb. Name of watershed/river/stream system: Middle James - WillisUnited States Soil Conservation 14-digit watershed code (if known): 00208020500H39c. Name of State Management/River Basin: James RiverUnited States Geological Survey 8-digit hydrologic cataloging unit code (if known): 02080500

G.6. CSO Operations.

Describe any known quality impacts on the receiving water caused by this CSO (e.g. permanent or intermittent beach closings, permanent or intermittent shell fish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable State water quality standard).

CSO discharges cause short duration episodic exceedances of the bacteriological water quality standards.

END OF PART G.

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM
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CSO OUTFALLS:

Complete questions G-3 through G-8 once for each CSO discharge point.

G.3. Description of Outfall.

a. Outfall Number 010 (Gambles Hill)b. Outfall Location Richmond 23219

(City or town, if applicable)

(Zip Code)

N/AVirginia

(County)

(State)

N 37deg 32 min 5.78 secW 77 deg 26 min 40.2 sec

(Latitude)

(Longitude)

c. Distance from shore (if applicable) N/A ft.d. Depth below Surface (if applicable) N/A ft.

e. Which of the following were monitored during the last year for this CSO?

☐ Rainfall☐ CSO pollutant concentrations☐ CSO frequency☐ CSO flow volume☐ Receiving water qualityf. How many storm events were monitored during the last year? 0

G.4. CSO Events.

a. Give the number of CSO events in the last year.

2 events(☐ actual or ☒ approx.)

b. Give the average duration per CSO event.

2 hours (☐ actual or ☒ approx.)

c. Give the average volume per CSO event.

0.25 million gallons(☐ actual or ☒ approx.)

d. Give the minimum rainfall that caused a CSO event in the last year.

1.2 inches of rainfall.

G.5. Description of Receiving Waters.

a. Name of receiving water: Haxall Canalb. Name of watershed/river/stream system: Middle James - Willis

United States Soil Conservation 14-digit watershed code (if known):

00208020500H39c. Name of State Management/River Basin: James River

United States Geological Survey 8-digit hydrologic cataloging unit code (if known):

02080500

G.6. CSO Operations.

Describe any known quality impacts on the receiving water caused by this CSO (e.g. permanent or intermittent beach closings, permanent or intermittent shell fish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable State water quality standard).

CSO discharges cause short duration episodic exceedances of the bacteriological water quality standards.

END OF PART G.

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM
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CSO OUTFALLS:

Complete questions G.3 through G.8 once for each CSO discharge point.

G.3. Description of Outfall.

a. Outfall Number 011 (Park Hydro)

b. Outfall Location	<u>Richmond</u>	<u>23220</u>
	(City or town, if applicable)	(Zip Code)
	<u>N/A</u>	<u>Virginia</u>
	(County)	(State)
	<u>N 37deg 32 min 0.93 sec</u>	<u>W 77 deg 27 min 11.35 sec</u>
	(Latitude)	(Longitude)

c. Distance from shore (if applicable) N/A ft.d. Depth below Surface (if applicable) N/A ft.

e. Which of the following were monitored during the last year for this CSO?

<input type="checkbox"/> Rainfall	<input type="checkbox"/> CSO pollutant concentrations	<input type="checkbox"/> CSO frequency
<input type="checkbox"/> CSO flow volume	<input type="checkbox"/> Receiving water quality	

f. How many storm events were monitored during the last year? 0

G.4. CSO Events.

a. Give the number of CSO events in the last year.
8 events (☐ actual or ☒ approx.)b. Give the average duration per CSO event.
2.5 hours (☐ actual or ☒ approx.)c. Give the average volume per CSO event.
1.4 million gallons (☐ actual or ☒ approx.)d. Give the minimum rainfall that caused a CSO event in the last year.
0.7 inches of rainfall.

G.5. Description of Receiving Waters.

a. Name of receiving water: James Riverb. Name of watershed/river/stream system: Middle James - WillisUnited States Soil Conservation 14-digit watershed code (if known): 00208020500H39c. Name of State Management/River Basin: James RiverUnited States Geological Survey 8-digit hydrologic cataloging unit code (if known): 02080500

G.6. CSO Operations.

Describe any known quality impacts on the receiving water caused by this CSO (e.g. permanent or intermittent beach closings, permanent or intermittent shell fish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable State water quality standard).

CSO discharges cause short duration episodic exceedances of the bacteriological water quality standards.

END OF PART G.

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM
2A YOU MUST COMPLETE.

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CSO OUTFALLS:

Complete questions G.3 through G.8 once for each CSO discharge point.

G.3. Description of Outfall.

a. Outfall Number 012 (Hilton Street)

b. Outfall Location	<u>Richmond</u>	<u>23231</u>
	(City or town, if applicable)	(Zip Code)
	<u>N/A</u>	<u>Virginia</u>
	(County)	(State)
	<u>N 37 deg 30 min 24.78 sec</u>	<u>W 77 deg 23 min 51.12 sec</u>
	(Latitude)	(Longitude)

c. Distance from shore (if applicable) N/A ft.d. Depth below Surface (if applicable) N/A ft.

e. Which of the following were monitored during the last year for this CSO?

<input type="checkbox"/> Rainfall	<input type="checkbox"/> CSO pollutant concentrations	<input type="checkbox"/> CSO frequency
<input type="checkbox"/> CSO flow volume	<input type="checkbox"/> Receiving water quality	

f. How many storm events were monitored during the last year? 0

G.4. CSO Events.

a. Give the number of CSO events in the last year.
38 events (☐ actual or ☒ approx.)b. Give the average duration per CSO event.
3.52 hours (☐ actual or ☒ approx.)c. Give the average volume per CSO event.
0.52 million gallons (☐ actual or ☒ approx.)d. Give the minimum rainfall that caused a CSO event in the last year.
0.2 inches of rainfall.

G.5. Description of Receiving Waters.

a. Name of receiving water: Almond Creekb. Name of watershed/river/stream system: Middle James - WillisUnited States Soil Conservation 14-digit watershed code (if known): 00208020500H39c. Name of State Management/River Basin: James RiverUnited States Geological Survey 8-digit hydrologic cataloging unit code (if known): 02080500

G.6. CSO Operations.

Describe any known quality impacts on the receiving water caused by this CSO (e.g. permanent or intermittent beach closings, permanent or intermittent shell fish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable State water quality standard).

CSO discharges cause short duration episodic exceedances of the bacteriological water quality standards.

END OF PART G

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE.

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CSO OUTFALLS:

Complete questions G.3 through G.8 once for each CSO discharge point.

G.3. Description of Outfall.

a. Outfall Number 013 (Maury Street)

b. Outfall Location	<u>Richmond</u>	<u>23225</u>
	(City or town, if applicable)	(Zip Code)
	<u>N/A</u>	<u>Virginia</u>
	(County)	(State)
	<u>N 37deg 31 min 31.94 sec</u>	<u>W 77 deg 25 min 47.11 sec</u>
	(Latitude)	(Longitude)

c. Distance from shore (if applicable) N/A ft.d. Depth below Surface (if applicable) N/A ft.

e. Which of the following were monitored during the last year for this CSO?

<input type="checkbox"/> Rainfall	<input type="checkbox"/> CSO pollutant concentrations	<input type="checkbox"/> CSO frequency
<input type="checkbox"/> CSO flow volume	<input type="checkbox"/> Receiving water quality	

f. How many storm events were monitored during the last year? 0

G.4. CSO Events.

a. Give the number of CSO events in the last year.
22 events (☐ actual or ☒ approx.)b. Give the average duration per CSO event.
2.47 hours (☐ actual or ☒ approx.)c. Give the average volume per CSO event.
0.18 million gallons (☐ actual or ☒ approx.)d. Give the minimum rainfall that caused a CSO event in the last year.
0.2 inches of rainfall.

G.5. Description of Receiving Waters.

a. Name of receiving water: Manchester Canalb. Name of watershed/river/stream system: Middle James - WillisUnited States Soil Conservation 14-digit watershed code (if known): 00208020500H39c. Name of State Management/River Basin: James RiverUnited States Geological Survey 8-digit hydrologic cataloging unit code (if known): 02080500

G.6. CSO Operations.

Describe any known quality impacts on the receiving water caused by this CSO (e.g. permanent or intermittent beach closings, permanent or intermittent shell fish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable State water quality standard).

CSO discharges cause short duration episodic exceedances of the bacteriological water quality standards.

END OF PART G.

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE.

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Complete questions G.3. through G.8. once for each CSO discharge point.

G.3. Description of Outfall.a. Outfall Number 014 Stockton Street

b. Outfall Location	<u>Richmond</u>	<u>23225</u>
	(City or town, if applicable)	(Zip Code)
	<u>N/A</u>	<u>Virginia</u>
	(County)	(State)
	<u>N 37 deg 31 min 31.49 sec</u>	<u>W 77 deg 25 min 58.27 sec</u>
	(Latitude)	(Longitude)

c. Distance from shore (if applicable) N/A ft.d. Depth below Surface (if applicable) N/A ft.

e. Which of the following were monitored during the last year for this CSO?

<input type="checkbox"/> Rainfall	<input type="checkbox"/> CSO pollutant concentrations	<input type="checkbox"/> CSO frequency
<input type="checkbox"/> CSO flow volume	<input type="checkbox"/> Receiving water quality	

f. How many storm events were monitored during the last year? 0**G.4. CSO Events.**a. Give the number of CSO events in the last year.
22 events (☐ actual or ☒ approx.)b. Give the average duration per CSO event.
2.25 hours (☐ actual or ☒ approx.)c. Give the average volume per CSO event.
2.8 million gallons (☐ actual or ☒ approx.)d. Give the minimum rainfall that caused a CSO event in the last year.
0.3 inches of rainfall.**G.5. Description of Receiving Waters.**a. Name of receiving water: Manchester Canalb. Name of watershed/river/stream system: Middle James - WillisUnited States Soil Conservation 14-digit watershed code (if known): 00208020500H39c. Name of State Management/River Basin: James RiverUnited States Geological Survey 8-digit hydrologic cataloging unit code (if known): 02080500**G.6. CSO Operations.**

Describe any known quality impacts on the receiving water caused by this CSO (e.g. permanent or intermittent beach closings, permanent or intermittent shell fish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable State water quality standard).

CSO discharges cause short duration episodic exceedances of the bacteriological water quality standards.**END OF PART G****REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE**

FACILITY NAME AND PERMIT NUMBER:

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OMB Number 2040-0086

RICHMOND WWTP VA 0063177

CSO OUTFALLS:

Complete questions G.3 through G.8 once for each CSO discharge point.

G.3. Description of Outfall.

a. Outfall Number 015 (Canoe Run)

b. Outfall Location	<u>Richmond</u>	<u>23225</u>
	(City or town, if applicable)	(Zip Code)
	<u>N/A</u>	<u>Virginia</u>
	(County)	(State)
	<u>N 37deg 31 min 29.22 sec</u>	<u>W 77 deg 27 min 26.49 sec</u>
	(Latitude)	(Longitude)

c. Distance from shore (if applicable) N/A ft.d. Depth below Surface (if applicable) N/A ft.

e. Which of the following were monitored during the last year for this CSO?

<input type="checkbox"/> Rainfall	<input type="checkbox"/> CSO pollutant concentrations	<input type="checkbox"/> CSO frequency
<input type="checkbox"/> CSO flow volume	<input type="checkbox"/> Receiving water quality	

f. How many storm events were monitored during the last year? 0

G.4. CSO Events.

a. Give the number of CSO events in the last year.
5 events (☐ actual or ☒ approx.)b. Give the average duration per CSO event.
2.5 hours (☐ actual or ☒ approx.)c. Give the average volume per CSO event.
7.6 million gallons (☐ actual or ☒ approx.)d. Give the minimum rainfall that caused a CSO event in the last year.
1 inches of rainfall.

G.5. Description of Receiving Waters.

a. Name of receiving water: James Riverb. Name of watershed/river/stream system: Middle James - WillisUnited States Soil Conservation 14-digit watershed code (if known): 00208020500H39c. Name of State Management/River Basin: James RiverUnited States Geological Survey 8-digit hydrologic cataloging unit code (if known): 02080500

G.6. CSO Operations.

Describe any known quality impacts on the receiving water caused by this CSO (e.g. permanent or intermittent beach closings, permanent or intermittent shell fish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable State water quality standard).

CSO discharges cause short duration episodic exceedances of the bacteriological water quality standards.

END OF PART G:

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM
2A YOU MUST COMPLETE.

FACILITY NAME AND PERMIT NUMBER:

RICHMOND WWTP VA 0063177

Form Approved 1/14/99
OMB Number 2040-0086**CSO OUTFALLS:**

Complete questions G.3 through G.8 once for each CSO discharge point.

G.3. Description of Outfall.a. Outfall Number 016 (Woodland Heights)

b. Outfall Location	<u>Richmond</u>	<u>23225</u>
	(City or town, if applicable)	(Zip Code)
	<u>N/A</u>	<u>Virginia</u>
	(County)	(State)
	<u>N 37deg 31 min 29.22 sec</u>	<u>W 77 deg 27 min 41.13 sec</u>
	(Latitude)	(Longitude)

c. Distance from shore (if applicable) N/A ft.d. Depth below Surface (if applicable) N/A ft.

e. Which of the following were monitored during the last year for this CSO?

<input type="checkbox"/> Rainfall	<input type="checkbox"/> CSO pollutant concentrations	<input type="checkbox"/> CSO frequency
<input type="checkbox"/> CSO flow volume	<input type="checkbox"/> Receiving water quality	

f. How many storm events were monitored during the last year? 0**G.4. CSO Events.**a. Give the number of CSO events in the last year.
1 events (☐ actual or ☒ approx.)b. Give the average duration per CSO event.
0 hours (☐ actual or ☒ approx.)c. Give the average volume per CSO event.
0.13 million gallons (☐ actual or ☒ approx.)d. Give the minimum rainfall that caused a CSO event in the last year.
1.8 inches of rainfall.**G.5. Description of Receiving Waters.**a. Name of receiving water: James Riverb. Name of watershed/river/stream system: Middle James - WillisUnited States Soil Conservation 14-digit watershed code (if known): 00208020500H39c. Name of State Management/River Basin: James RiverUnited States Geological Survey 8-digit hydrologic cataloging unit code (if known): 02080500**G.6. CSO Operations.**

Describe any known quality impacts on the receiving water caused by this CSO (e.g. permanent or intermittent beach closings, permanent or intermittent shell fish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable State water quality standard).

CSO discharges cause short duration episodic exceedances of the bacteriological water quality standards.

END OF PART G.

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM
2A YOU MUST COMPLETE.

FACILITY NAME AND PERMIT NUMBER:

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RICHMOND WWTP VA 0063177

CSO OUTFALLS:

Complete questions G.3 through G.8 once for each CSO discharge point.

G.3. Description of Outfall.

a. Outfall Number 017 (Reedy Creek)

b. Outfall Location	<u>Richmond</u>	<u>23225</u>
	(City or town, if applicable)	(Zip Code)
	<u>N/A</u>	<u>Virginia</u>
	(County)	(State)
	<u>N 37deg 31 min 27.77 sec</u>	<u>W 77 deg 28 min 9.16 sec</u>
	(Latitude)	(Longitude)

c. Distance from shore (if applicable) N/A ft.d. Depth below Surface (if applicable) N/A ft.

e. Which of the following were monitored during the last year for this CSO?

<input type="checkbox"/> Rainfall	<input type="checkbox"/> CSO pollutant concentrations	<input type="checkbox"/> CSO frequency
<input type="checkbox"/> CSO flow volume	<input type="checkbox"/> Receiving water quality	

f. How many storm events were monitored during the last year? 0

G.4. CSO Events.

a. Give the number of CSO events in the last year.
0 events (☐ actual or ☒ approx.)b. Give the average duration per CSO event.
0 hours (☐ actual or ☒ approx.)c. Give the average volume per CSO event.
0 million gallons (☐ actual or ☒ approx.)d. Give the minimum rainfall that caused a CSO event in the last year.
N/A inches of rainfall.

G.5. Description of Receiving Waters.

a. Name of receiving water: James Riverb. Name of watershed/river/stream system: Middle James - WillisUnited States Soil Conservation 14-digit watershed code (if known): 00208020500H39c. Name of State Management/River Basin: James RiverUnited States Geological Survey 8-digit hydrologic cataloging unit code (if known): 02080500

G.6. CSO Operations.

Describe any known quality impacts on the receiving water caused by this CSO (e.g. permanent or intermittent beach closings, permanent or intermittent shell fish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable State water quality standard).

CSO discharges cause short duration episodic exceedances of the bacteriological water quality standards.

END OF PART G

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM
2A YOU MUST COMPLETE

FACILITY NAME AND PERMIT NUMBER:

Form Approved 1/14/99
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Complete questions G.3 through G.6 once for each CSO discharge point.

G.3. Description of Outfall.a. Outfall Number 018 (42nd Street)

b. Outfall Location	<u>Richmond</u>	<u>23225</u>
	(City or town, if applicable)	(Zip Code)
	<u>N/A</u>	<u>Virginia</u>
	(County)	(State)
	<u>N 37deg 31 min 32.58 sec</u>	<u>W 77 deg 28 min 25.25 sec</u>
	(Latitude)	(Longitude)

c. Distance from shore (if applicable) N/A ft.d. Depth below Surface (if applicable) N/A ft.

e. Which of the following were monitored during the last year for this CSO?

<input type="checkbox"/> Rainfall	<input type="checkbox"/> CSO pollutant concentrations	<input type="checkbox"/> CSO frequency
<input type="checkbox"/> CSO flow volume	<input type="checkbox"/> Receiving water quality	

f. How many storm events were monitored during the last year? 0**G.4. CSO Events.**a. Give the number of CSO events in the last year.
1 events (☐ actual or ☒ approx.)b. Give the average duration per CSO event.
0 hours (☐ actual or ☒ approx.)c. Give the average volume per CSO event.
0 million gallons (☐ actual or ☒ approx.)d. Give the minimum rainfall that caused a CSO event in the last year.
1.8 inches of rainfall.**G.5. Description of Receiving Waters.**a. Name of receiving water: James Riverb. Name of watershed/river/stream system: Middle James - WillisUnited States Soil Conservation 14-digit watershed code (if known): 00208020500H39c. Name of State Management/River Basin: James RiverUnited States Geological Survey 8-digit hydrologic cataloging unit code (if known): 02080500**G.6. CSO Operations.**

Describe any known quality impacts on the receiving water caused by this CSO (e.g. permanent or intermittent beach closings, permanent or intermittent shell fish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable State water quality standard).

CSO discharges cause short duration episodic exceedances of the bacteriological water quality standards.**END OF PART G****REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE**

FACILITY NAME AND PERMIT NUMBER:

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RICHMOND WWTP VA 0063177

CSO OUTFALLS:

Complete questions G.3 through G.8 once for each CSO discharge point.

G.3. Description of Outfall.

a. Outfall Number 019 (Hampton Street)

b. Outfall Location	<u>Richmond</u>	<u>23220</u>
	(City or town, if applicable)	(Zip Code)
	<u>N/A</u>	<u>Virginia</u>
	(County)	(State)
	<u>N 37deg 31 min 50.53 sec</u>	<u>W 77 deg 28 min 30.66 sec</u>
	(Latitude)	(Longitude)

c. Distance from shore (if applicable) N/A ft.d. Depth below Surface (if applicable) N/A ft.

e. Which of the following were monitored during the last year for this CSO?

<input type="checkbox"/> Rainfall	<input type="checkbox"/> CSO pollutant concentrations	<input type="checkbox"/> CSO frequency
<input type="checkbox"/> CSO flow volume	<input type="checkbox"/> Receiving water quality	

f. How many storm events were monitored during the last year? 0

G.4. CSO Events.

a. Give the number of CSO events in the last year.
7 events (☐ actual or ☒ approx.)b. Give the average duration per CSO event.
2 hours (☐ actual or ☒ approx.)c. Give the average volume per CSO event.
8.6 million gallons (☐ actual or ☒ approx.)d. Give the minimum rainfall that caused a CSO event in the last year.
1.3 inches of rainfall.

G.5. Description of Receiving Waters.

a. Name of receiving water: James Riverb. Name of watershed/river/stream system: Middle James - WillisUnited States Soil Conservation 14-digit watershed code (if known): 00208020500H39c. Name of State Management/River Basin: James RiverUnited States Geological Survey 8-digit hydrologic cataloging unit code (if known): 02080500

G.6. CSO Operations.

Describe any known quality impacts on the receiving water caused by this CSO (e.g. permanent or intermittent beach closings, permanent or intermittent shell fish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable State water quality standard).

CSO discharges cause short duration episodic exceedances of the bacteriological water quality standards.

END OF PART G

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM
2A YOU MUST COMPLETE.

FACILITY NAME AND PERMIT NUMBER:

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RICHMOND WWTP VA 0063177

CSO OUTFALLS:

Complete questions G.3 through G.8 once for each CSO discharge point.

G.3. Description of Outfall.

a. Outfall Number 020 (McCloy Street)

b. Outfall Location	<u>Richmond</u>	<u>23221</u>
	(City or town, if applicable)	(Zip Code)
	<u>N/A</u>	<u>Virginia</u>
	(County)	(State)
	<u>N 37deg 32 min 24.32 sec</u>	<u>W 77 deg 29 min 41.85 sec</u>
	(Latitude)	(Longitude)

c. Distance from shore (if applicable) N/A ft.d. Depth below Surface (if applicable) N/A ft.

e. Which of the following were monitored during the last year for this CSO?

<input type="checkbox"/> Rainfall	<input type="checkbox"/> CSO pollutant concentrations	<input type="checkbox"/> CSO frequency
<input type="checkbox"/> CSO flow volume	<input type="checkbox"/> Receiving water quality	

f. How many storm events were monitored during the last year? 0

G.4. CSO Events.

a. Give the number of CSO events in the last year.
6 events (☐ actual or ☒ approx.)b. Give the average duration per CSO event.
2 hours (☐ actual or ☒ approx.)c. Give the average volume per CSO event.
4.1 million gallons (☐ actual or ☒ approx.)d. Give the minimum rainfall that caused a CSO event in the last year.
1.5 inches of rainfall.

G.5. Description of Receiving Waters.

a. Name of receiving water: James Riverb. Name of watershed/river/stream system: Middle James - WillisUnited States Soil Conservation 14-digit watershed code (if known): 00208020500H39c. Name of State Management/River Basin: James RiverUnited States Geological Survey 8-digit hydrologic cataloging unit code (if known): 02080500

G.6. CSO Operations.

Describe any known quality impacts on the receiving water caused by this CSO (e.g. permanent or intermittent beach closings, permanent or intermittent shell fish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable State water quality standard).

CSO discharges cause short duration episodic exceedances of the bacteriological water quality standards.

END OF PART G.

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM
2A YOU MUST COMPLETE.

FACILITY NAME AND PERMIT NUMBER:

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RICHMOND WWTP VA 0063177

CSO OUTFALLS:

Complete questions G.3 through G.8 once for each CSO discharge point.

G.3. Description of Outfall.

a. Outfall Number 021 Gordon Ave.)

b. Outfall Location	<u>Richmond</u>	<u>23224</u>
	(City or town, if applicable)	(Zip Code)
	<u>N/A</u>	<u>Virginia</u>
	(County)	(State)
	<u>N 37deg 31 min 23.29 sec</u>	<u>W 77 deg 24 min 15.12 sec</u>
	(Latitude)	(Longitude)

c. Distance from shore (if applicable) N/A ft.d. Depth below Surface (if applicable) N/A ft.

e. Which of the following were monitored during the last year for this CSO?

<input type="checkbox"/> Rainfall	<input type="checkbox"/> CSO pollutant concentrations	<input type="checkbox"/> CSO frequency
<input type="checkbox"/> CSO flow volume	<input type="checkbox"/> Receiving water quality	

f. How many storm events were monitored during the last year? 0

G.4. CSO Events.

a. Give the number of CSO events in the last year.
52 events (☐ actual or ☒ approx.)b. Give the average duration per CSO event.
5.28 hours (☐ actual or ☒ approx.)c. Give the average volume per CSO event.
3.56 million gallons (☐ actual or ☒ approx.)d. Give the minimum rainfall that caused a CSO event in the last year.
0.1 inches of rainfall.

G.5. Description of Receiving Waters.

a. Name of receiving water: James Riverb. Name of watershed/river/stream system: Middle James - WillisUnited States Soil Conservation 14-digit watershed code (if known): 00208020500H39c. Name of State Management/River Basin: James RiverUnited States Geological Survey 8-digit hydrologic cataloging unit code (if known): 02080500

G.6. CSO Operations.

Describe any known quality impacts on the receiving water caused by this CSO (e.g. permanent or intermittent beach closings, permanent or intermittent shell fish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable State water quality standard).

CSO discharges cause short duration episodic exceedances of the bacteriological water quality standards.

END OF PART G.

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM
2A YOU MUST COMPLETE.

FACILITY NAME AND PERMIT NUMBER:

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CSO OUTFALLS:

Complete questions G.3 through G.8 once for each CSO discharge point.

G.3. Description of Outfall.

a. Outfall Number 024 (Gillie and Varina Streets)

b. Outfall Location	<u>Richmond</u>	<u>23231</u>
	(City or town, if applicable)	(Zip Code)
	<u>N/A</u>	<u>Virginia</u>
	(County)	(State)
	<u>N 37deg 31 min 42.41 sec</u>	<u>W 77 deg 23 min 37.04 sec</u>
	(Latitude)	(Longitude)

c. Distance from shore (if applicable) N/A ft.d. Depth below Surface (if applicable) N/A ft.

e. Which of the following were monitored during the last year for this CSO?

<input type="checkbox"/> Rainfall	<input type="checkbox"/> CSO pollutant concentrations	<input type="checkbox"/> CSO frequency
<input type="checkbox"/> CSO flow volume	<input type="checkbox"/> Receiving water quality	

f. How many storm events were monitored during the last year? 0

G.4. CSO Events.

a. Give the number of CSO events in the last year.
40 events (☐ actual or ☒ approx.)b. Give the average duration per CSO event.
3.86 hours (☐ actual or ☒ approx.)c. Give the average volume per CSO event.
0.63 million gallons (☐ actual or ☒ approx.)d. Give the minimum rainfall that caused a CSO event in the last year.
0.1 inches of rainfall.

G.5. Description of Receiving Waters.

a. Name of receiving water: Gillies Creekb. Name of watershed/river/stream system: Middle James - WillisUnited States Soil Conservation 14-digit watershed code (if known): 00208020500H39c. Name of State Management/River Basin: James RiverUnited States Geological Survey 8-digit hydrologic cataloging unit code (if known): 02080500

G.6. CSO Operations.

Describe any known quality impacts on the receiving water caused by this CSO (e.g. permanent or intermittent beach closings, permanent or intermittent shell fish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable State water quality standard).

CSO discharges cause short duration episodic exceedances of the bacteriological water quality standards.

END OF PART G.

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM
2A YOU MUST COMPLETE.

FACILITY NAME AND PERMIT NUMBER:

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RICHMOND WWTP VA 0063177

CSO OUTFALLS:

Complete questions G.3 through G.8 once for each CSO discharge point.

G.3. Description of Outfall.

- a. Outfall Number 025 (Briel Street and Gillies Creek)
- b. Outfall Location Richmond 23223
(City or town, if applicable) (Zip Code)
N/A Virginia
(County) (State)
N 37deg 31 min 42.41 sec W 77 deg 23 min 37.04 sec
(Latitude) (Longitude)
- c. Distance from shore (if applicable) N/A ft.
- d. Depth below Surface (if applicable) N/A ft.
- e. Which of the following were monitored during the last year for this CSO?
- ☐ Rainfall ☐ CSO pollutant concentrations ☐ CSO frequency
☐ CSO flow volume ☐ Receiving water quality
- f. How many storm events were monitored during the last year? 0

G.4. CSO Events.

- a. Give the number of CSO events in the last year.
33 events (☐ actual or ☒ approx.)
- b. Give the average duration per CSO event.
3.43 hours (☐ actual or ☒ approx.)
- c. Give the average volume per CSO event.
0.68 million gallons (☐ actual or ☒ approx.)
- d. Give the minimum rainfall that caused a CSO event in the last year.
1.1 inches of rainfall.

G.5. Description of Receiving Waters.

- a. Name of receiving water: Gillies Creek
- b. Name of watershed/river/stream system: Middle James - Willis
United States Soil Conservation 14-digit watershed code (if known): 00208020500H39
- c. Name of State Management/River Basin: James River
United States Geological Survey 8-digit hydrologic cataloging unit code (if known): 02080500

G.6. CSO Operations.

Describe any known quality impacts on the receiving water caused by this CSO (e.g. permanent or intermittent beach closings, permanent or intermittent shell fish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable State water quality standard).

CSO discharges cause short duration episodic exceedances of the bacteriological water quality standards.

END OF PART G

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM
2A YOU MUST COMPLETE.

FACILITY NAME AND PERMIT NUMBER:

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RICHMOND WWTP VA 0063177

CSO OUTFALLS:

Complete questions G.3 through G.8 once for each CSO discharge point.

G.3. Description of Outfall.

- a. Outfall Number 026 (Gov't Road and NSRR)
- b. Outfall Location Richmond 23231
(City or town, if applicable) (Zip Code)
N/A Virginia
(County) (State)
N 37deg 31 min 28.67 sec W 77 deg 23 min 58.46 sec
(Latitude) (Longitude)
- c. Distance from shore (if applicable) N/A ft.
- d. Depth below Surface (if applicable) N/A ft.
- e. Which of the following were monitored during the last year for this CSO?
- ☐ Rainfall ☐ CSO pollutant concentrations ☐ CSO frequency
☐ CSO flow volume ☐ Receiving water quality
- f. How many storm events were monitored during the last year? 0

G.4. CSO Events.

- a. Give the number of CSO events in the last year.
33 events (actual or X approx.)
- b. Give the average duration per CSO event.
2.97 hours (actual or X approx.)
- c. Give the average volume per CSO event.
0.22 million gallons (actual or X approx.)
- d. Give the minimum rainfall that caused a CSO event in the last year.
1.1 inches of rainfall.

G.5. Description of Receiving Waters.

- a. Name of receiving water: Gillies Creek
- b. Name of watershed/river/stream system: Middle James - Willis
United States Soil Conservation 14-digit watershed code (if known): 00208020500H39
- c. Name of State Management/River Basin: James River
United States Geological Survey 8-digit hydrologic cataloging unit code (if known): 02080500

G.6. CSO Operations.

Describe any known quality impacts on the receiving water caused by this CSO (e.g. permanent or intermittent beach closings, permanent or intermittent shell fish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable State water quality standard).

CSO discharges cause short duration episodic exceedances of the bacteriological water quality standards.

END OF PART G.

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM

2A YOU MUST COMPLETE.

FACILITY NAME AND PERMIT NUMBER:

Form Approved 1/14/99

OMB Number 2040-0085

RICHMOND WWTP VA 0063177

CSO OUTFALLS:

Complete questions G.3 through G.8 once for each CSO discharge point.

G.3. Description of Outfall.

a. Outfall Number 028 (Williamsburg Road)

b. Outfall Location	<u>Richmond</u>	<u>23231</u>
	(City or town, if applicable)	(Zip Code)
	<u>N/A</u>	<u>Virginia</u>
	(County)	(State)
	<u>N 37deg 31 min 20.42 sec</u>	<u>W 77 deg 24 min 44.51 sec</u>
	(Latitude)	(Longitude)

c. Distance from shore (if applicable) N/A ft.d. Depth below Surface (if applicable) N/A ft.

e. Which of the following were monitored during the last year for this CSO?

<input type="checkbox"/> Rainfall	<input type="checkbox"/> CSO pollutant concentrations	<input type="checkbox"/> CSO frequency
<input type="checkbox"/> CSO flow volume	<input type="checkbox"/> Receiving water quality	

f. How many storm events were monitored during the last year? 0

G.4. CSO Events.

a. Give the number of CSO events in the last year.
17 events (☐ actual or ☒ approx.)b. Give the average duration per CSO event.
2.4 hours (☐ actual or ☒ approx.)c. Give the average volume per CSO event.
1.1 million gallons (☐ actual or ☒ approx.)d. Give the minimum rainfall that caused a CSO event in the last year.
0.5 inches of rainfall.

G.5. Description of Receiving Waters.

a. Name of receiving water: Gillies Creekb. Name of watershed/river/stream system: Middle James - WillisUnited States Soil Conservation 14-digit watershed code (if known): 00208020500H39c. Name of State Management/River Basin: James RiverUnited States Geological Survey 8-digit hydrologic cataloging unit code (if known): 02080500

G.6. CSO Operations.

Describe any known quality impacts on the receiving water caused by this CSO (e.g. permanent or intermittent beach closings, permanent or intermittent shell fish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable State water quality standard).

CSO discharges cause short duration episodic exceedances of the bacteriological water quality standards.

END OF PART G

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM
2A YOU MUST COMPLETE

FACILITY NAME AND PERMIT NUMBER:

Form Approved 1/14/99
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RICHMOND WWTP VA 0063177

CSO OUTFALLS:

Complete questions G.3 through G.8 once for each CSO discharge point.

G.3. Description of Outfall.

- a. Outfall Number 031 (Oakwood Cemetery)
- b. Outfall Location Richmond 23223
(City or town, if applicable) (Zip Code)
N/A Virginia
(County) (State)
N 37deg 32 min 19.52 sec W 77 deg 24 min 44.51 sec
(Latitude) (Longitude)
- c. Distance from shore (if applicable) N/A ft.
- d. Depth below Surface (if applicable) N/A ft.
- e. Which of the following were monitored during the last year for this CSO?
☐ Rainfall ☐ CSO pollutant concentrations ☐ CSO frequency
☐ CSO flow volume ☐ Receiving water quality
- f. How many storm events were monitored during the last year? 0

G.4. CSO Events.

- a. Give the number of CSO events in the last year.
12 events (☐ actual or ☒ approx.)
- b. Give the average duration per CSO event.
2.29 hours (☐ actual or ☒ approx.)
- c. Give the average volume per CSO event.
1 million gallons (☐ actual or ☒ approx.)
- d. Give the minimum rainfall that caused a CSO event in the last year.
0.1 inches of rainfall.

G.5. Description of Receiving Waters.

- a. Name of receiving water: Stoney Run
- b. Name of watershed/river/stream system: Middle James - Willis
United States Soil Conservation 14-digit watershed code (if known): 00208020500H39
- c. Name of State Management/River Basin: James River
United States Geological Survey 8-digit hydrologic cataloging unit code (if known): 02080500

G.6. CSO Operations.

Describe any known quality impacts on the receiving water caused by this CSO (e.g. permanent or intermittent beach closings, permanent or intermittent shell fish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable State water quality standard).

CSO discharges cause short duration episodic exceedances of the bacteriological water quality standards.

END OF PART G.

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM
2A YOU MUST COMPLETE.

FACILITY NAME AND PERMIT NUMBER:

Form Approved 1/14/99

OMB Number 2040-0086

RICHMOND WWTP VA 0063177

CSO OUTFALLS:

Complete questions G.3 through G.8 once for each CSO discharge point.

G.3. Description of Outfall.

a. Outfall Number 033 (Shields Lake)

b. Outfall Location	<u>Richmond</u>	<u>23220</u>
	(City or town, if applicable)	(Zip Code)
	<u>N/A</u>	<u>Virginia</u>
	(County)	(State)
	<u>N 37deg 32 min 17.43 sec</u>	<u>W 77 deg 28 min 35.69 sec</u>
	(Latitude)	(Longitude)

c. Distance from shore (if applicable) N/A ft.d. Depth below Surface (if applicable) N/A ft.

e. Which of the following were monitored during the last year for this CSO?

<input type="checkbox"/> Rainfall	<input type="checkbox"/> CSO pollutant concentrations	<input type="checkbox"/> CSO frequency
<input type="checkbox"/> CSO flow volume	<input type="checkbox"/> Receiving water quality	

f. How many storm events were monitored during the last year? 0

G.4. CSO Events.

a. Give the number of CSO events in the last year.
4 events (☐ actual or ☒ approx.)b. Give the average duration per CSO event.
2 hours (☐ actual or ☒ approx.)c. Give the average volume per CSO event.
0.4 million gallons (☐ actual or ☒ approx.)d. Give the minimum rainfall that caused a CSO event in the last year.
1.5 inches of rainfall.

G.5. Description of Receiving Waters.

a. Name of receiving water: Dooley's Branchb. Name of watershed/river/stream system: Middle James - WillisUnited States Soil Conservation 14-digit watershed code (if known): 00208020500H39c. Name of State Management/River Basin: James RiverUnited States Geological Survey 8-digit hydrologic cataloging unit code (if known): 02080500

G.6. CSO Operations.

Describe any known quality impacts on the receiving water caused by this CSO (e.g. permanent or intermittent beach closings, permanent or intermittent shell fish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable State water quality standard).

CSO discharges cause short duration episodic exceedances of the bacteriological water quality standards.

END OF PART G.

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE.

FACILITY NAME AND PERMIT NUMBER:

Form Approved 1/14/99

OMB Number 2040-0086

RICHMOND WWTP VA 0063177

CSO OUTFALLS:

Complete questions G.3 through G.8 once for each CSO discharge point.

G.3. Description of Outfall.

a. Outfall Number 034 (19th and Dock)

b. Outfall Location	<u>Richmond</u>	<u>23219</u>
	(City or town, if applicable)	(Zip Code)
	<u>N/A</u>	<u>Virginia</u>
	(County)	(State)
	<u>N 37deg 31 min 51.67 sec</u>	<u>W 77 deg 25 min 40.46 sec</u>
	(Latitude)	(Longitude)

c. Distance from shore (if applicable) N/A ft.d. Depth below Surface (if applicable) N/A ft.

e. Which of the following were monitored during the last year for this CSO?

<input type="checkbox"/> Rainfall	<input type="checkbox"/> CSO pollutant concentrations	<input type="checkbox"/> CSO frequency
<input type="checkbox"/> CSO flow volume	<input type="checkbox"/> Receiving water quality	

f. How many storm events were monitored during the last year? 0

G.4. CSO Events.

a. Give the number of CSO events in the last year.
44 events (☐ actual or ☒ approx.)b. Give the average duration per CSO event.
4.76 hours (☐ actual or ☒ approx.)c. Give the average volume per CSO event.
1.9 million gallons (☐ actual or ☒ approx.)d. Give the minimum rainfall that caused a CSO event in the last year.
1.1 inches of rainfall.

G.5. Description of Receiving Waters.

a. Name of receiving water: City Dockb. Name of watershed/river/stream system: Middle James - WillisUnited States Soil Conservation 14-digit watershed code (if known): 00208020500H39c. Name of State Management/River Basin: James RiverUnited States Geological Survey 8-digit hydrologic cataloging unit code (if known): 02080500

G.6. CSO Operations.

Describe any known quality impacts on the receiving water caused by this CSO (e.g. permanent or intermittent beach closings, permanent or intermittent shell fish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable State water quality standard).

CSO discharges cause short duration episodic exceedances of the bacteriological water quality standards.

END OF PART G

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE.

FACILITY NAME AND PERMIT NUMBER:

Form Approved 1/14/99

OMB Number 2040-0086

RICHMOND WWTP VA 0063177

CSO OUTFALLS:

Complete questions G.3 through G.8 once for each CSO discharge point.

G.3. Description of Outfall.

a. Outfall Number 035 (25th and Dock)

b. Outfall Location	<u>Richmond</u>	<u>23219</u>
	(City or town, if applicable)	(Zip Code)
	<u>N/A</u>	<u>Virginia</u>
	(County)	(State)
	<u>N 37deg 31 min 39.03 sec</u>	<u>W 77 deg 25 min 21.28 sec</u>
	(Latitude)	(Longitude)

c. Distance from shore (if applicable) N/A ft.d. Depth below Surface (if applicable) N/A ft.

e. Which of the following were monitored during the last year for this CSO?

<input type="checkbox"/> Rainfall	<input type="checkbox"/> CSO pollutant concentrations	<input type="checkbox"/> CSO frequency
<input type="checkbox"/> CSO flow volume	<input type="checkbox"/> Receiving water quality	

f. How many storm events were monitored during the last year? 0

G.4. CSO Events.

a. Give the number of CSO events in the last year.
4 events (☐ actual or ☒ approx.)b. Give the average duration per CSO event.
2 hours (☐ actual or ☒ approx.)c. Give the average volume per CSO event.
0.06 million gallons (☐ actual or ☒ approx.)d. Give the minimum rainfall that caused a CSO event in the last year.
0.1 inches of rainfall.

G.5. Description of Receiving Waters.

a. Name of receiving water: City Dockb. Name of watershed/river/stream system: Middle James - WillisUnited States Soil Conservation 14-digit watershed code (if known): 00208020500H39c. Name of State Management/River Basin: James RiverUnited States Geological Survey 8-digit hydrologic cataloging unit code (if known): 02080500

G.6. CSO Operations.

Describe any known quality impacts on the receiving water caused by this CSO (e.g. permanent or intermittent beach closings, permanent or intermittent shell fish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable State water quality standard).

CSO discharges cause short duration episodic exceedances of the bacteriological water quality standards.

END OF PART G.

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE.

FACILITY NAME AND PERMIT NUMBER:

Form Approved 1/14/99
OMB Number 2040-0086

RICHMOND WWTP VA 0063177

CSO OUTFALLS:

Complete questions G.3 through G.8 once for each CSO discharge point.

G.3. Description of Outfall.

a. Outfall Number 039 (Gov't Rd. and Gillies Creek)

b. Outfall Location	<u>Richmond</u>	<u>23223</u>
	(City or town, if applicable)	(Zip Code)
	<u>N/A</u>	<u>Virginia</u>
	(County)	(State)
	<u>N 37 deg 31 min 23.94 sec</u>	<u>W 77 deg 24 min 17.45 sec</u>
	(Latitude)	(Longitude)

c. Distance from shore (if applicable) N/A ft.d. Depth below Surface (if applicable) N/A ft.

e. Which of the following were monitored during the last year for this CSO?

<input type="checkbox"/> Rainfall	<input type="checkbox"/> CSO pollutant concentrations	<input type="checkbox"/> CSO frequency
<input type="checkbox"/> CSO flow volume	<input type="checkbox"/> Receiving water quality	

f. How many storm events were monitored during the last year? 0

G.4. CSO Events.

a. Give the number of CSO events in the last year.
41 events (☐ actual or ☒ approx.)b. Give the average duration per CSO event.
4.6 hours (☐ actual or ☒ approx.)c. Give the average volume per CSO event.
0.81 million gallons (☐ actual or ☒ approx.)d. Give the minimum rainfall that caused a CSO event in the last year.
0.1 inches of rainfall.

G.5. Description of Receiving Waters.

a. Name of receiving water: Gillies Creekb. Name of watershed/river/stream system: Middle James - WillisUnited States Soil Conservation 14-digit watershed code (if known): 00208020500H39c. Name of State Management/River Basin: James RiverUnited States Geological Survey 8-digit hydrologic cataloging unit code (if known): 02080500

G.6. CSO Operations.

Describe any known quality impacts on the receiving water caused by this CSO (e.g. permanent or intermittent beach closings, permanent or intermittent shell fish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable State water quality standard).

CSO discharges cause short duration episodic exceedances of the bacteriological water quality standards.

END OF PART G.

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM
2A YOU MUST COMPLETE.

FACILITY NAME AND PERMIT NUMBER:

Form Approved 1/14/99

OMB Number 2040-0086

RICHMOND WWTP VA 0063177

CSO OUTFALLS:

Complete questions G.3 through G.8 once for each CSO discharge point.

G.3. Description of Outfall.

a. Outfall Number 040 (CSO - 1 outfall / SSJRP)

b. Outfall Location	<u>Richmond</u>	<u>23224</u>
	(City or town, if applicable)	(Zip Code)
	<u>N/A</u>	<u>Virginia</u>
	(County)	(State)
	<u>N 37deg 31 min 41.2 sec</u>	<u>W 77 deg 26 min 23.35 sec</u>
	(Latitude)	(Longitude)

c. Distance from shore (if applicable) N/A ft.d. Depth below Surface (if applicable) N/A ft.

e. Which of the following were monitored during the last year for this CSO?

<input type="checkbox"/> Rainfall	<input type="checkbox"/> CSO pollutant concentrations	<input type="checkbox"/> CSO frequency
<input type="checkbox"/> CSO flow volume	<input type="checkbox"/> Receiving water quality	

f. How many storm events were monitored during the last year? 0

G.4. CSO Events.

a. Give the number of CSO events in the last year.
47 events (☐ actual or ☒ approx.)b. Give the average duration per CSO event.
6.28 hours (☐ actual or ☒ approx.)c. Give the average volume per CSO event.
4.5 million gallons (☐ actual or ☒ approx.)d. Give the minimum rainfall that caused a CSO event in the last year.
0.2 inches of rainfall.

G.5. Description of Receiving Waters.

a. Name of receiving water: James Riverb. Name of watershed/river/stream system: Middle James-WillisUnited States Soil Conservation 14-digit watershed code (if known): 00208020500H39c. Name of State Management/River Basin: James River BasinUnited States Geological Survey 8-digit hydrologic cataloging unit code (if known): 02080205

G.6. CSO Operations.

Describe any known quality impacts on the receiving water caused by this CSO (e.g. permanent or intermittent beach closings, permanent or intermittent shell fish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable State water quality standard).

CSO discharges cause short duration episodic exceedances of the bacteriological water quality standards.

END OF PART G

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE.

Richmond WWTP
VPDES Permit #VA0063177
Outfall No. 001
Permit Reissuance Application

VPDES SEWAGE SLUDGE FORM

Richmond WWTP
VPDES Permit #VA0063177
Outfall No. 001
Permit Reissuance Application

VPDES SEWAGE SLUDGE FORM - SECTION A:
GENERAL INFORMATION

FACILITY NAME: Richmond WWTP

VPDES PERMIT NUMBER: VA 0063177

VPDES SEWAGE SLUDGE PERMIT APPLICATION FORM

SCREENING INFORMATION

This information is divided into sections. Sections A pertain to all applicants. The applicability of Sections B, C and D depend on your facility's sewage sludge use or disposal practices. The information provided on this page will help you determine which sections to fill out.

1. All applicants must complete Section A (General Information)

2. Will this facility generate sewage sludge? ☒ Yes ☐ No

Will this facility derive a material from sewage sludge? ☐ Yes ☒ No

If you answered Yes to either, complete Section B (generation of Sewage Sludge Or Preparation Of A Material Derived From Sewage Sludge).

3. Will this facility apply sewage sludge to the land? ☐ Yes ☒ No

Will sewage sludge from this facility be applied to the land? ☒ Yes ☐ No

If you answered Yes to either, answer the following three questions:

a. Will the sewage sludge from this facility meet the ceiling concentrations, pollutant concentrations, Class A pathogen reduction requirements and one of the vector attraction reduction requirements 1-8, as identified in the instructions? ☐ Yes ☒ No

b. Will sewage sludge from this facility be placed in a bag or other container for sale or give-away for application to the land? ☐ Yes ☒ No

c. Will sewage sludge from this facility be sent to another facility for treatment or blending? ☐ Yes ☒ No

If you answered No to all three, complete Section C (Land Application Of Bulk Sewage Sludge) (See Supplement No. S-AF)

If you answered Yes to a, b or c, skip Section C.

4. Do you own or operate a surface disposal site? ☐ Yes ☒ No

If Yes, complete Section D (Surface Disposal)

FACILITY NAME: Richmond WWTPVPDES PERMIT NUMBER: VA 0063177

SECTION A. GENERAL INFORMATION

All applicants must complete this section.

1. Facility Information.

- a. Facility name: Richmond Wastewater Treatment Facility
- b. Contact Person: Mr. Christopher Beschler
Title: Director of Public Utilities
Phone: (804) 646-5200
- c. Mailing Address:
Street or P.O. Box: 730 E. Broad Street
City or Town: Richmond State: VA Zip: 23219
- d. Facility Location:
Street or Route #: 1400 Brander Street
County: N/A
City or Town: Richmond State: VA Zip: 23224-2399
- e. Is this facility a Class I sludge management facility? X Yes No
- f. Facility design flow rate: 45 dry / 75 wet mgd
- g. Total population served:
- h. Indicate the type of facility :
 X Publicly owned treatment works (POTW)
 Privately owned treatment works
 Federally owned treatment works
 Blending or treatment operation
 Surface disposal site
 Other (describe):

2. Applicant Information. If the applicant is different from the above, please provide the following:

- a. Applicant name: Mr. Clair L. Watson
- b. Mailing Address: 1400 Brander Street
Street or P.O. Box:
City or Town: Richmond State: VA Zip: 23224-2399
- c. Contact Person: Mr. Clair L. Watson
Title: Supt. of Plant Operations
Phone: (804) 646-8903
- d. Is the applicant the owner or operator (or both) of this facility?
 X owner X operator
- e. Should correspondence regarding this permit be directed to the facility or the applicant? (Check one)
 X facility applicant

3. Permit Information

- a. Facility's VPDES permit number (if applicable): VA 0063177
- b. List on this form or an attachment, all other federal, state or local permits or construction, approvals received or applied for that regulate this facility's sewage sludge management practices:
Permit Number: Type of Permit:
N / A

4. Indian Country. Does any generation, treatment, storage, application to land or disposal of sewage sludge from this facility occur in Indian Country? Yes X No If yes, describe:

FACILITY NAME: Richmond WWTP

VPDES PERMIT NUMBER: VA 0063177

5. Topographic Map. Provide a topographic map or maps (or other appropriate maps if a topographic map is unavailable) that shows the following information. Maps should include the area one mile beyond all property boundaries of the facility.
- Location of all sewage sludge management facilities, including locations where sewage sludge is generated, stored, treated, or disposed.
 - Location of all wells, springs, and other surface water bodies listed in public records or otherwise known to the applicant within 1/4 mile of the property boundaries.

Refer to Figure A.5. "Topographical Map of Richmond WWTP"

6. Line Drawing. Provide a line drawing and/or a narrative description that identifies all sewage sludge processes that will be employed during the term of the permit including all processes used for collecting, dewatering, storing, or treating sewage sludge, the destination(s) of all liquids and solids leaving each unit, and all methods used for pathogen reduction and vector attraction reduction.

Refer to Figure A.6. "WWTP Flow and Solids Handling Diagram"

7. Contractor Information. Are any operational or maintenance aspects of this facility related to sewage sludge generation, treatment, use or disposal the responsibility of a contractor? X Yes No
If yes, provide the following for each contractor (attach additional pages if necessary).

Name: Nutri-Blend Inc
Mailing Address: _____
Street or P.O. Box: P.O. Box 38060
City or Town: Richmond State: VA Zip: 23231
Phone: (804) 222-7514

Contractor's Federal, State or Local Permit Number(s) applicable to this facility's sewage sludge:

(SEE SUPPLEMENT NO. S-A1)

If the contractor is responsible for the use and/or disposal of the sewage sludge, provide a description of the services to be provided to the applicant and the respective obligations of the applicant and the contractor(s).

(SEE SUPPLEMENT NO. S-A1)

8. Pollutant Concentrations. Using the table below or a separate attachment, provide sewage sludge monitoring data for the pollutants which limits in sewage sludge have been established in 9 VAC 25-31-10 et seq. for this facility's expected use or disposal practices. All data must be based on three or more samples taken at least one month apart and must be no more than four and one-half years old. (SEE SUPPLEMENT NO. S-A1)

POLLUTANT	CONCENTRATION (mg/kg dry weight)	SAMPLE DATE	ANALYTICAL METHOD	DETECTION LEVEL FOR ANALYSIS
Arsenic				
Cadmium				
Chromium				
Copper				
Lead				
Mercury				
Molybdenum				
Nickel				
Selenium				
Zinc				

9. Certification. Read and submit the following certification statement with this application. Refer to the instructions to determine who is an officer for purposes of this certification. Indicate which parts of the application you have completed and are submitting:

 X Section A (general Information)
 X Section B (Generation of Sewage Sludge or Preparation of a Material Derived from Sewage Sludge)
_____ Section C (Land Application of Bulk Sewage Sludge)
_____ Section D (Surface Disposal)

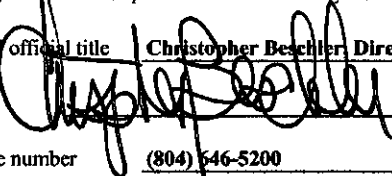
FACILITY NAME: Richmond WWTP

VPDES PERMIT NUMBER: VA 0063177

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name and official title Christopher Beschler, Director of Public Utilities

Signature



Date Signed

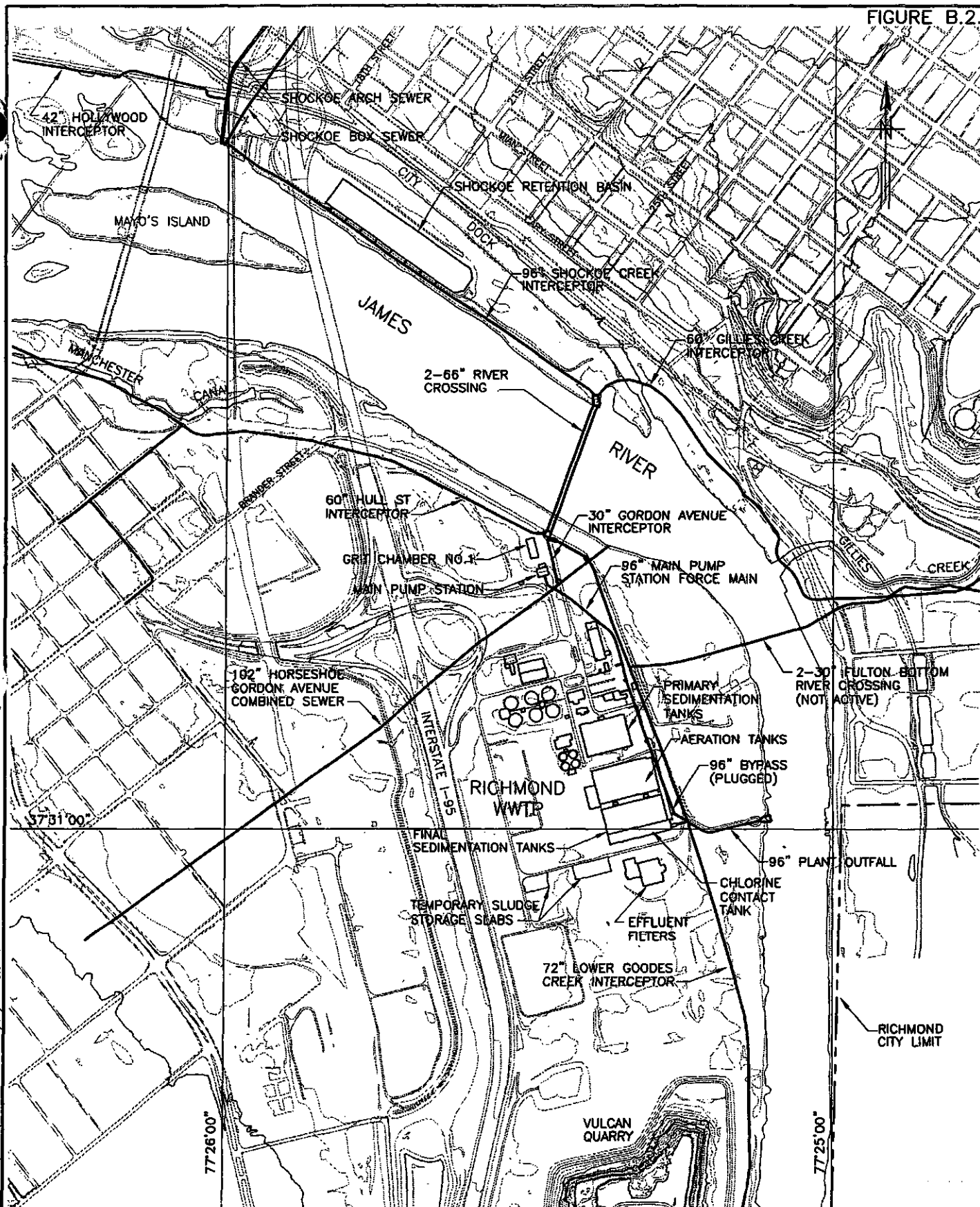
8-26-2009

Telephone number

(804) 546-5200

Upon request of the department, you must submit any other information necessary to assess sewage sludge use or disposal practices at your facility or identify appropriate permitting requirements.

FIGURE B.2.

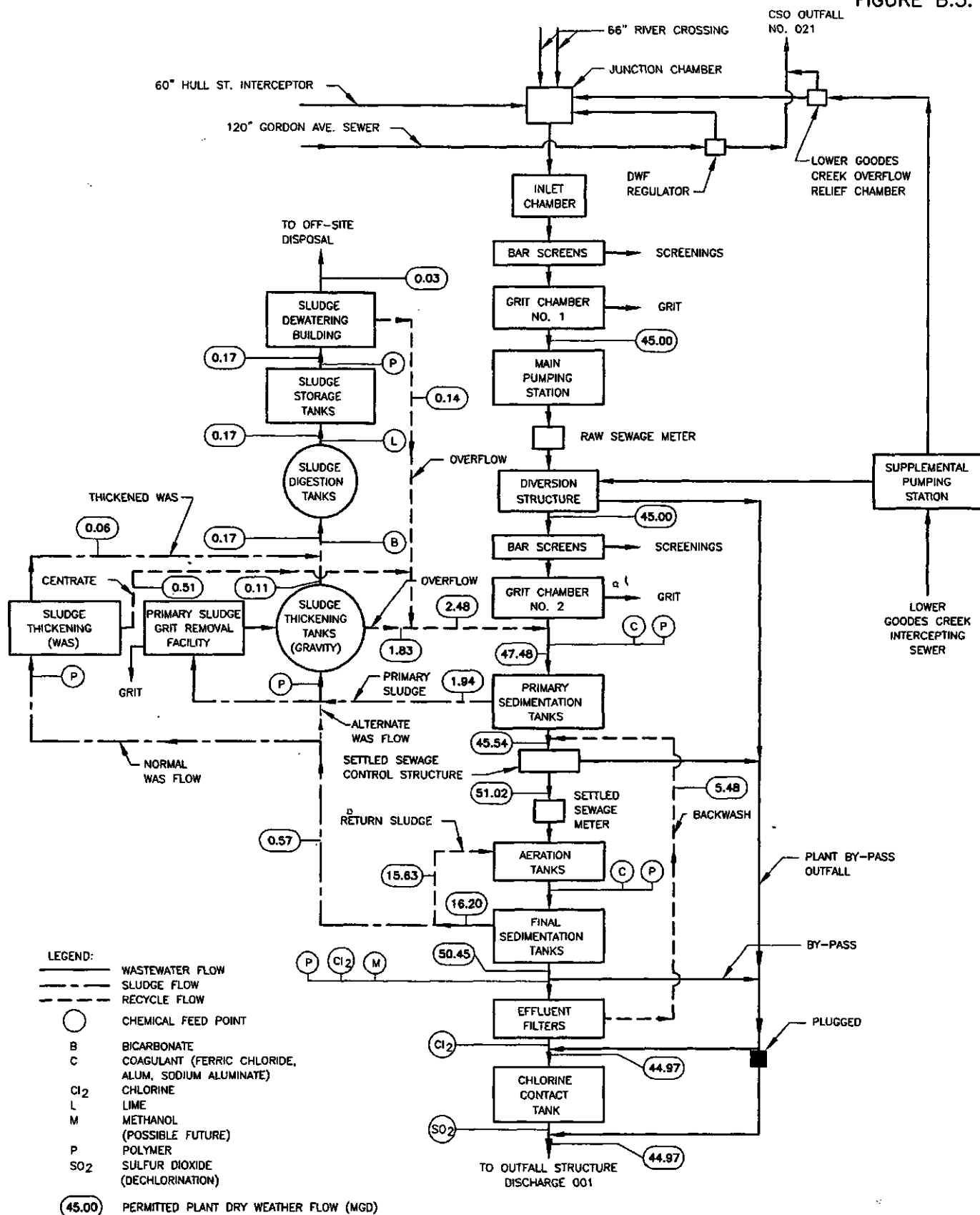


TOPOGRAPHICAL MAP OF RICHMOND WWTP

SCALE: 1"=1000'

CITY OF RICHMOND, VIRGINIA
DEPARTMENT OF PUBLIC UTILITIES
VPDES PERMIT REISSUANCE APPLICATION

FIGURE B.3.



WWTP FLOW DIAGRAM AND WATER BALANCE

CITY OF RICHMOND, VIRGINIA
DEPARTMENT OF PUBLIC UTILITIES
VPDES PERMIT REISSUANCE APPLICATION

Additional Information

Richmond WWTP
VPDES Permit #VA0063177
Outfall No. 001

SUPPLEMENT NO. S-A1

Question No.

Response

Item A.7.

Contractor's Federal, State or Local Permit Number(s) applicable to this facility's sewage sludge:

Virginia Dept. of Health Biosolids Use/Treatment Works
Operation Permits

VDHBUR 70	VDHBUR 64
VDHBUR 91	VDHBUR 47
VDHBUR 142	VDHBUR 14
VDHBUR 27	VDHBUR 54
VDHBUR 50	VDHBUR 35
VDHBUR 74	VDHBUR 84
VDHBUR 46	VDHBUR 31
VDHBUR 00802	VDHBUR 101

If the contractor is responsible for the use and/or disposal of the sewage sludge, provide a description of the service to be provided to the applicant and the respective obligations of the applicant and the contractor(s).

Nutri-Blends's sewage sludge responsibilities include the following:

- On-site collection and hauling of the discharged sewage sludge to temporary storage pads;
- Loading and off-site hauling of the sewage; and
- Disposal of the sewage sludge by land application.

Item A.8.

See Pollutant Concentration Tables A1 – A15.

Additional Information

Richmond WWTP
VPDES Permit #VA0063177
Outfall No. 001

SUPPLEMENT NO. S-A1

Question No.

Response

Item A.7.

Contractor's Federal, State or Local Permit Number(s) applicable to this facility's sewage sludge:

Virginia Dept. of Health Biosolids Use/Treatment Works
Operation Permits

If the contractor is responsible for the use and/or disposal of the sewage sludge, provide a description of the service to be provided to the applicant and the respective obligations of the applicant and the contractor(s).

Nutri-Blends's sewage sludge responsibilities include the following:

- On-site collection and hauling of the discharged sewage sludge to temporary storage pads;
- Loading and off-site hauling of the sewage; and
- Disposal of the sewage sludge by land application.

Item A.8.

See Pollutant Concentration Tables A1 – A15.

A-1

**CITY OF RICHMOND WASTEWATER TREATMENT PLANT
SLUDGE SUMMARY**

JANUARY - FEBRUARY 2007

POLLUTANT	CONCENTRATION (MG/KG) Sample Date:02/09/07	CONCENTRATION (MG/KG) QL :	ALLOWABLE MAXIMUM (MG/KG)
Arsenic	10	2.08	41
Cadmium	26	26	39
Chromium	52	52	1200
Copper	410	26	1500
Lead	110	104	300
Mercury	1	.132	17
Molybdenum	52	52	75
Nickel	52	52	420
Selenium	5.5	5.2	36
Zinc	1300	52	2800

NITROGEN SUMMARY

TYPE SAMPLE DATE: SAMPLE DATE:

NO₃-N (MG/KG)

TKN (MG/KG)

NH₃-N (MG/KG)

**CITY OF RICHMOND WASTEWATER TREATMENT PLANT
SLUDGE SUMMARY**

NITROGEN SUMMARY

A-2

**CITY OF RICHMOND WASTEWATER TREATMENT PLANT
SLUDGE SUMMARY**

MARCH - APRIL 2007

POLLUTANT	CONCENTRATION	CONCENTRATION	ALLOWABLE MAXIMUM (MG/KG)
	(MG/KG) Sample Date:04/10/07	(MG/KG) QL :	
Arsenic	19.6	19.6	41
Cadmium	9.8	9.8	39
Chromium	51	19.6	1200
Copper	440	9.8	1500
Lead	110	9.8	300
Mercury	1	.0011	17
Molybdenum	20	19.6	75
Nickel	28	19.6	420
Selenium	25.1	25.1	36
Zinc	1300	19.6	2800

NITROGEN SUMMARY

TYPE SAMPLE DATE: SAMPLE DATE:

NO₃-N (MG/KG)

TKN (MG/KG)

NH₃-N (MG/KG)

**CITY OF RICHMOND WASTEWATER TREATMENT PLANT
SLUDGE SUMMARY**

THOGEN SUMMARY

A-3

**CITY OF RICHMOND WASTEWATER TREATMENT PLANT
SLUDGE SUMMARY**

MAY - JUNE 2007

POLLUTANT	CONCENTRATION (MG/KG) Sample Date:06/16/06	CONCENTRATION (MG/KG) QL :	ALLOWABLE MAXIMUM (MG/KG)
Arsenic	10.2	10.2	41
Cadmium	12.8	12.8	39
Chromium	51	25.5	1200
Copper	490	12.8	1500
Lead	120	12.8	300
Mercury	1.1	.13	17
Molybdenum	25.5	25.5	75
Nickel	30	25.5	420
Selenium	1.1	0.92	36
Zinc	1300	0.13	2800

NITROGEN SUMMARY

TYPE	SAMPLE DATE:	SAMPLE DATE:
NO ₃ -N (MG/KG)		
TKN (MG/KG)		
NH ₃ -N (MG/KG)		

**CITY OF RICHMOND WASTEWATER TREATMENT PLANT
SLUDGE SUMMARY**

THOGEN SUMMARY

A-4

**CITY OF RICHMOND WASTEWATER TREATMENT PLANT
SLUDGE SUMMARY**

July - August 2007

POLLUTANT	CONCENTRATION (MG/KG) Sample Date:08/09/07	CONCENTRATION (MG/KG) QL :	ALLOWABLE MAXIMUM (MG/KG)
Arsenic	1.4	0.5	41
Cadmium	12.1	12.1	39
Chromium	49	24.2	1200
Copper	490	12.1	1500
Lead	130	48.4	300
Mercury	1.2	0.13	17
Molybdenum	24.2	24.2	75
Nickel	31	24.2	420
Selenium	.96	0.23	36
Zinc	1300	24.2	2800

NITROGEN SUMMARY

TYPE	SAMPLE DATE: 08/09/07	SAMPLE DATE:
NO ₃ -N (MG/KG)	17	
TKN (MG/KG)	9200	
NH ₃ -N (MG/KG)	1700	

**CITY OF RICHMOND WASTEWATER TREATMENT PLANT
SLUDGE SUMMARY**

THOGEN SUMMARY

A-5

**CITY OF RICHMOND WASTEWATER TREATMENT PLANT
SLUDGE SUMMARY**

September - October 2007

POLLUTANT	CONCENTRATION	CONCENTRATION	ALLOWABLE MAXIMUM (MG/KG)
	(MG/KG) Sample Date:09/19/07	(MG/KG) QL :	
Arsenic	3.9	2.8	41
Cadmium	.65	0.54	39
Chromium	61	0.83	1200
Copper	520	2.8	1500
Lead	120	2.1	300
Mercury	1.3	0.21	17
Molybdenum	19	5.6	75
Nickel	32	2.8	420
Selenium	BQL	8.3	36
Zinc	1300	5.6	2800

NITROGEN SUMMARY

TYPE	SAMPLE DATE: 09/19/07	SAMPLE DATE:
NO ₃ -N (MG/KG)	37	
TKN (MG/KG)	44000	
NH ₃ -N (MG/KG)	7100	

**CITY OF RICHMOND WASTEWATER TREATMENT PLANT
SLUDGE SUMMARY**

THOGEN SUMMARY

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**CITY OF RICHMOND WASTEWATER TREATMENT PLANT
SLUDGE SUMMARY**

NOVEMBER - DECEMBER 2007

POLLUTANT	CONCENTRATION (MG/KG) Sample Date:11/18/07	CONCENTRATION (MG/KG) QL :	ALLOWABLE MAXIMUM (MG/KG)
Arsenic	3.8	2.4	41
Cadmium	7.2	0.47	39
Chromium	54	0.71	1200
Copper	550	2.4	1500
Lead	100	1.8	300
Mercury	1.2	.18	17
Molybdenum	18	4.7	75
Nickel	22	2.4	420
Selenium	7.1	7.1	36
Zinc	1300	4.7	2800

NITROGEN SUMMARY

TYPE	SAMPLE DATE: 11/28/07	SAMPLE DATE:
NO ₃ -N (MG/KG)	81	
TKN (MG/KG)	49000	
NH ₃ -N (MG/KG)	7400	

**CITY OF RICHMOND WASTEWATER TREATMENT PLANT
SLUDGE SUMMARY**

THOGEN SUMMARY

A-7

**CITY OF RICHMOND WASTEWATER TREATMENT PLANT
SLUDGE SUMMARY**

January - February 2008

POLLUTANT	CONCENTRATION	CONCENTRATION	ALLOWABLE MAXIMUM (MG/KG)
	(MG/KG) Sample Date:01/24/08	(MG/KG) QL :	
Arsenic	8.0	1	41
Cadmium	6.0	1	39
Chromium	74	1	1200
Copper	570	1	1500
Lead	136	1	300
Mercury	0.36	.05	17
Molybdenum	19	1	75
Nickel	34	1	420
Selenium	2.0	1	36
Zinc	1380	0.5	2800

NITROGEN SUMMARY

TYPE	SAMPLE DATE: 01/24/08	SAMPLE DATE:
NO ₃ -N (MG/KG)	18	
TKN (MG/KG)	3620	
NH ₃ -N (MG/KG)	4400	

**CITY OF RICHMOND WASTEWATER TREATMENT PLANT
SLUDGE SUMMARY**

THOGEN SUMMARY

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**CITY OF RICHMOND WASTEWATER TREATMENT PLANT
SLUDGE SUMMARY**

March - April 2008

POLLUTANT	CONCENTRATION (MG/KG) Sample Date:03/26/08	CONCENTRATION (MG/KG) QL :	ALLOWABLE MAXIMUM (MG/KG)
Arsenic	5.0	0.5	41
Cadmium	5.0	0.5	39
Chromium	51	0.5	1200
Copper	463	0.5	1500
Lead	88	0.5	300
Mercury	0.51	0.21	17
Molybdenum	11	0.5	75
Nickel	22	0.5	420
Selenium	7.0	0.5	36
Zinc	1170	0.3	2800

NITROGEN SUMMARY

TYPE	SAMPLE DATE: 01/24/08	SAMPLE DATE:
NO ₃ -N (MG/KG)	5.54	
TKN (MG/KG)	73900	
NH ₃ -N (MG/KG)	2010	

**CITY OF RICHMOND WASTEWATER TREATMENT PLANT
SLUDGE SUMMARY**

THOGEN SUMMARY

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**CITY OF RICHMOND WASTEWATER TREATMENT PLANT
SLUDGE SUMMARY**

May - June 2008

POLLUTANT	CONCENTRATION (MG/KG) Sample Date:05/28/08	CONCENTRATION (MG/KG) QL :	ALLOWABLE MAXIMUM (MG/KG)
Arsenic	6.0	1	41
Cadmium	5.0	1	39
Chromium	60	1	1200
Copper	433	1	1500
Lead	109	1	300
Mercury	0.99	0.25	17
Molybdenum	12	1	75
Nickel	24	1	420
Selenium	8.0	1	36
Zinc	1110	0.5	2800

NITROGEN SUMMARY

TYPE	SAMPLE DATE: 05/28/08	SAMPLE DATE:
NO ₃ -N (MG/KG)	83	
TKN (MG/KG)	7030	
NH ₃ -N (MG/KG)	4620	

**CITY OF RICHMOND WASTEWATER TREATMENT PLANT
SLUDGE SUMMARY**

THOGEN SUMMARY

A-10

**CITY OF RICHMOND WASTEWATER TREATMENT PLANT
SLUDGE SUMMARY**

July - August 2008

POLLUTANT	CONCENTRATION	CONCENTRATION	ALLOWABLE MAXIMUM (MG/KG)
	(MG/KG) Sample Date:07/30/08	(MG/KG) QL :	
Arsenic	20.0	1	41
Cadmium	3.0	1	39
Chromium	71	1	1200
Copper	480	1	1500
Lead	132	1	300
Mercury	1.25	0.25	17
Molybdenum	12	1	75
Nickel	25	1	420
Selenium	7.0	1	36
Zinc	1280	0.5	2800

NITROGEN SUMMARY

TYPE	SAMPLE DATE: 07/30/08	SAMPLE DATE:
NO ₃ -N (MG/KG)	25.1	
TKN (MG/KG)	36900	
NH ₃ -N (MG/KG)	6730	

**CITY OF RICHMOND WASTEWATER TREATMENT PLANT
SLUDGE SUMMARY**

THOGEN SUMMARY

A- 11

**CITY OF RICHMOND WASTEWATER TREATMENT PLANT
SLUDGE SUMMARY**

September - October 2008

POLLUTANT	CONCENTRATION (MG/KG) Sample Date:10/01/08	CONCENTRATION (MG/KG) QL :	ALLOWABLE MAXIMUM (MG/KG)
Arsenic	6.19	1	41
Cadmium	4.0	1	39
Chromium	73	1	1200
Copper	410	1	1500
Lead	124	1	300
Mercury	1.00	0.25	17
Molybdenum	14	1	75
Nickel	25	1	420
Selenium	5.0	1	36
Zinc	1160	0.5	2800

NITROGEN SUMMARY

TYPE	SAMPLE DATE: 10/01/08	SAMPLE DATE:
NO ₃ -N (MG/KG)	25.1	
TKN (MG/KG)	36100	
NH ₃ -N (MG/KG)	3800	

**CITY OF RICHMOND WASTEWATER TREATMENT PLANT
SLUDGE SUMMARY**

PATHOGEN SUMMARY

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**CITY OF RICHMOND WASTEWATER TREATMENT PLANT
SLUDGE SUMMARY**

NOVEMBER - DECEMBER 2008

POLLUTANT	CONCENTRATION (MG/KG) Sample Date: 12/02/08	CONCENTRATION (MG/KG) QL :	ALLOWABLE MAXIMUM (MG/KG)
Arsenic	7.0	1.00	41
Cadmium	5.0	1.00	39
Chromium	73	1.00	1200
Copper	483	1.00	1500
Lead	90	1.00	300
Mercury	0.76	.25	17
Molybdenum	13	1.00	75
Nickel	24	1.00	420
Selenium	6	1.00	36
Zinc	930	0.5	2800

NITROGEN SUMMARY

TYPE	SAMPLE DATE: 12/02/08	SAMPLE DATE:
NO ₃ -N (MG/KG)	80.6	
TKN (MG/KG)	18700	
NH ₃ -N (MG/KG)	6020	

**CITY OF RICHMOND WASTEWATER TREATMENT PLANT
SLUDGE SUMMARY**

THOGEN SUMMARY

A-13

**CITY OF RICHMOND WASTEWATER TREATMENT PLANT
SLUDGE SUMMARY**

January - February 2009

POLLUTANT	CONCENTRATION (MG/KG) Sample Date:01/21/09	CONCENTRATION (MG/KG) QL :	ALLOWABLE MAXIMUM (MG/KG)
Arsenic	9.0	0.5	41
Cadmium	6.0	05	39
Chromium	74	0.5	1200
Copper	529	0.5	1500
Lead	103	0.5	300
Mercury	0.79	0.25	17
Molybdenum	14	0.5	75
Nickel	25	0.5	420
Selenium	7.0	0.5	36
Zinc	1310	0.2	2800

NITROGEN SUMMARY

TYPE	SAMPLE DATE: 01/21/09	SAMPLE DATE:
NO ₃ -N (MG/KG)	19.1	
TKN (MG/KG)	22200	
NH ₃ -N (MG/KG)	6590	

**CITY OF RICHMOND WASTEWATER TREATMENT PLANT
SLUDGE SUMMARY**

THOGEN SUMMARY

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**CITY OF RICHMOND WASTEWATER TREATMENT PLANT
SLUDGE SUMMARY**

March - April 2009

POLLUTANT	CONCENTRATION (MG/KG) Sample Date:03/26/09	CONCENTRATION (MG/KG) QL :	ALLOWABLE MAXIMUM (MG/KG)
Arsenic	7.16	0.95	41
Cadmium	7.05	0.95	39
Chromium	68.7	0.95	1200
Copper	538	0.95	1500
Lead	110	0.95	300
Mercury	0.89	0.25	17
Molybdenum	13.9	0.95	75
Nickel	25.8	0.02	420
Selenium	10.1	0.95	36
Zinc	1400	0.47	2800

NITROGEN SUMMARY

TYPE	SAMPLE DATE: 03/26/09	SAMPLE DATE:
NO ₃ -N (MG/KG)	17.6	
TKN (MG/KG)	34500	
NH ₃ -N (MG/KG)	6490	

**CITY OF RICHMOND WASTEWATER TREATMENT PLANT
SLUDGE SUMMARY**

THOGEN SUMMARY

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**CITY OF RICHMOND WASTEWATER TREATMENT PLANT
SLUDGE SUMMARY**

May - June 2009

POLLUTANT	CONCENTRATION (MG/KG) Sample Date:06/022/09	CONCENTRATION (MG/KG) QL :	ALLOWABLE MAXIMUM (MG/KG)
Arsenic	N/D	7.6	41
Cadmium	3.0	0.76	39
Chromium	49	3.8	1200
Copper	400	3.8	1500
Lead	100	7.6	300
Mercury	1.6	0.075	17
Molybdenum	11	7.6	75
Nickel	N/D	7.6	420
Selenium	N/D	30	36
Zinc	1100	15	2800

NITROGEN SUMMARY

TYPE	SAMPLE DATE: 06/02/09	SAMPLE DATE:
NO ₃ -N (MG/KG)	2.56	
TKN (MG/KG)	43700	
NH ₃ -N (MG/KG)	6590	

**CITY OF RICHMOND WASTEWATER TREATMENT PLANT
SLUDGE SUMMARY**

PATHOGEN SUMMARY

Richmond WWTP
VPDES Permit #VA0063177
Outfall No. 001
Permit Reissuance Application

**VPDES SEWAGE SLUDGE FORM - SECTION B:
GENERATION OF SEWAGE SLUDGE OR PREPARATION
OF A MATERIAL DERIVED FROM SEWAGE SLUDGE**

FACILITY NAME: RICHMOND WWTPVPDES PERMIT NUMBER: VA 0063177**SECTION B. GENERATION OF SEWAGE SLUDGE OR PREPARATION
OF A MATERIAL DERIVED FROM SEWAGE SLUDGE**

Complete this section if your facility generates sewage sludge or derives a material from sewage sludge

1. Amount Generated On Site.

Total dry metric tons per 365-day period generated at your facility: 6,460 dry metric tons

2. Amount Received from Off Site. If your facility receives sewage sludge from another facility for treatment, use or disposal, provide the following information for each facility from which sewage sludge is received. If you receive sewage sludge from more than one facility, attach additional pages as necessary.

- a. Facility name: N/A
- b. Facility contact: _____
Title: _____
Phone: (804) _____
- c. Mailing address: _____
Street or P.O. Box: _____
City or Town: _____ State: _____ Zip: _____
- d. Facility Address: _____
(not P.O. Box)
- e. Total dry metric tons per 365-day period received from this facility: _____ dry metric tons
- f. Describe, on this form or on another sheet of paper, any treatment processes known to occur at the off-site facility, including blending activities and treatment to reduce pathogens or vector attraction characteristics:
- _____
- _____

3. Treatment Provided at Your Facility.

- a. Which class of pathogen reduction is achieved for the sewage sludge at your facility?
_____ Class A X Class B _____ Neither or unknown
- b. Describe, on this form or on another sheet of paper, any treatment processes used at your facility to reduce pathogens in sewage sludge: Anaerobic Sludge Digestion Tanks
- c. Which vector attraction reduction option is met for the sewage sludge at your facility ?
X Option 1 (Minimum 38 percent reduction in volatile solids)
_____ Option 2 (Anaerobic process, with bench-scale demonstration)
_____ Option 3 (Aerobic process, with bench-scale demonstration)
_____ Option 4 (Specific oxygen uptake rate for aerobically digested sludge)
_____ Option 5 (Aerobic processes plus raised temperature)
_____ Option 6 (Raise pH to 12 and retain at 11.5)
_____ Option 7 (75 percent solids with no unstabilized solids)
_____ Option 8 (90 percent solids with unstabilized solids)
_____ None or unknown
- d. Describe, on this form or another sheet of paper, any treatment processes used at your facility to reduce vector attraction properties of sewage sludge: (SEE SUPPLEMENT NO. S-B1)
- e. Describe, on this form or another sheet of paper, any other treatment activities, including blending, not identified in a - d above: N/A

4. Preparation of Sewage Sludge Meeting Ceiling and Pollutant Concentrations, Class A Pathogen Requirements and One of Vector Attraction Reduction Options 1-8 (EQ Sludge). N/A

(If sewage sludge from your facility does not meet all of these criteria, skip question 4.)

- a. Total dry metric tons per 365-day period of sewage sludge subject to this section that is applied to the land: _____ dry metric tons
- b. Is sewage sludge subject to this section placed in bags or other containers for sale or give-away?
_____ Yes _____ No

FACILITY NAME: RICHMOND WWTPVPDES PERMIT NUMBER: VA 0063177

5. Sale or Give-Away in a Bag or Other Container for Application to the Land.
- N/A

(Complete this question if you place sewage sludge in a bag or other container for sale or give-away prior to land application. Skip this question if sewage sludge is covered in Question 4.)

- a. Total dry metric tons per 365-day period of sewage sludge placed in a bag or other container at your facility for sale or give-away for application of the land: _____ dry metric tons
- b. Attach, with this application, a copy of all labels or notices that accompany the sewage sludge being sold or given away in a bag or other container for application to the land.

6. Shipment Off Site for Treatment or Blending.
- N/A

(Complete this question if sewage sludge from your facility is sent to another facility that provides treatment or blending. This question does not apply to sewage sludge sent directly to a land application or surface disposal site. Skip this question if the sewage sludge is covered in Questions 4 or 5. If you send sewage sludge to more than one facility, attach additional sheets as necessary.)

- a. Facility name: _____
- b. Facility contact: _____
Title: _____
Phone: () _____
- c. Mailing address: _____
Street or P.O. Box: _____
City or Town: _____ State: _____ Zip: _____
- d. Total dry metric tons per 365-day period of sewage sludge provided to receiving facility: _____ dry metric tons

- e. List, on this form or an attachment, the receiving facility's VPDES permit number as well as the numbers of all other federal, state or local permits that regulate the receiving facility's sewage sludge use or disposal practices:

Permit Number:Type of Permit:_____

- f. Does the receiving facility provide additional treatment to reduce pathogens in sewage sludge from your facility? _____ Yes _____ No

Which class of pathogen reduction is achieved for the sewage sludge at the receiving facility?

_____ Class A _____ Class B _____ Neither or unknown

Describe, on this form or another sheet of paper, any treatment processes used at the receiving facility to reduce pathogens in sewage sludge: _____

- g. Does the receiving facility provide additional treatment to reduce vector attraction characteristics of the sewage sludge? _____ Yes _____ No

_____ Option 1 (Minimum 38 percent reduction in volatile solids)
_____ Option 2 (Anaerobic process, with bench-scale demonstration)
_____ Option 3 (Aerobic process, with bench-scale demonstration)
_____ Option 4 (Specific oxygen uptake rate for aerobically digested sludge)
_____ Option 5 (Aerobic processes plus raised temperature)
_____ Option 6 (Raise pH to 12 and retain at 11.5)
_____ Option 7 (75 percent solids with no unstabilized solids)
_____ Option 8 (90 percent solids with unstabilized solids)
_____ None or unknown

Describe, on this form or another sheet of paper, any treatment processes used at the receiving facility to reduce vector attraction properties of sewage sludge: _____

- h. Does the receiving facility provide any additional treatment or blending not identified in f or g above?

_____ Yes _____ No

If yes, describe, on this form or another sheet of paper, the treatment processes not identified in f or g above? _____

- i. If you answered yes to f, g or h above, attach a copy of any information you provide to the receiving facility to comply with the "notice and necessary information" requirement of 9 VAC 25-31-530.G.

FACILITY NAME: RICHMOND WWTPVPDES PERMIT NUMBER: VA 0063177

- j. Does the receiving facility place sewage sludge from your facility in a bag or other container for sale or give-away for application to the land? Yes No
If yes, provide a copy of all labels or notices that accompany the product being sold or given away.
- k. Will the sewage sludge be transported to the receiving facility in a truck-mounted watertight tank normally used for such purposes? Yes No. If no, provide description and specification on the vehicle used to transport the sewage sludge to the receiving facility.
show the haul route(s) on a location map or briefly describe the haul route below and indicate the days of the week and the times of the day sewage sludge will be transported. _____

7. Land Application of Bulk Sewage Sludge.

(Complete question 7.a if sewage sludge from your facility is applied to the land, unless the sewage sludge is covered in questions 4, 5 or 6; complete question 7.b, c & d only if you are responsible for land application of sewage sludge.)

- a. Total dry metric tons per 365-day period of sewage sludge to all land application sites: 6,460 dry metric tons
- b. Do you identify all land application sites in Section C of this application? N/A Yes No
If no, submit a copy of the Land Application Plan (LAP) with this application (LAP should be prepared in accordance with the instructions).
- c. Are any land application sites located in States other than Virginia? N/A Yes No
If yes, describe, on this form or on another sheet of paper, how you notify the permitting authority for the States where the land application sites are located. Provide a copy of the notification. _____
- d. Attach a copy of any information you provide to the owner or lease holder of the land application sites to comply with the "notice and necessary" information requirement of 9 VAC 25-31-530 F and/or H (Examples may be obtained in Appendix IV). N/A

8. Surface Disposal N/A

(Complete Question 8 if sewage sludge from your facility is placed on a surface disposal site.)

- a. Total dry metric tons per 365-day period of sewage sludge from your facility placed on all surface disposal sites: dry metric tons
- b. Do you own or operate all surface disposal sites to which you send sewage sludge for disposal?
 Yes No
If no, answer questions c - g for each surface disposal site that you do not own or operate. If you send sewage sludge to more than one surface disposal site, attach additional pages as necessary.
- c. Site name or number: _____
- d. Contact person: _____
Title: _____
Phone: () _____
Contact is: Site Owner Site Operator
Mailing address: _____
Street or P.O. Box: _____
City or Town: _____ State: _____ Zip: _____
- f. Total dry metric tons per 365-day period of sewage sludge from your facility placed on this surface disposal site: dry metric tons
- g. List, on this form or an attachment, the surface disposal site VPDES permit number as well as the numbers of all other federal, state or local permits that regulate the sewage sludge use or disposal practices at the surface disposal site:
Permit Number: _____ Type of Permit: _____

FACILITY NAME: RICHMOND WWTPVPDES PERMIT NUMBER: VA 0063177

9. Incineration.

(Complete Question 9 if sewage sludge from your facility is fired in a sewage sludge incinerator.)

N/A

- a. Total dry metric tons per 365-day period of sewage sludge from your facility fired in a sewage sludge incinerator: _____ dry metric tons
- b. Do you own or operate all sludge incinerators in which sewage sludge from your facility is fired?
_____ Yes _____ No
If no, answer questions c - g for each sewage sludge incinerator that you do not own or operate. If you send sewage sludge to more than one sewage sludge incinerator, attach additional pages as necessary.
- c. Incinerator name or number: _____
- d. Contact person: _____
Title: _____
Phone: () _____
Contact is: _____ Incinerator Owner _____ Incinerator Operator
- e. Mailing address: _____
Street or P.O. Box: _____
City or Town: _____ State: _____ Zip: _____
- f. Total dry metric tons per 365-day period of sewage sludge from your facility fired in this sewage sludge incinerator: _____ dry metric tons
- g. List, on this form or an attachment, the numbers of all other federal, state or local permits that regulate the firing of sewage sludge at this incinerator:
Permit Number: _____ Type of Permit: _____

10. Disposal in a Municipal Solid Waste Landfill.

(Complete question 10 if sewage sludge from your facility is placed on a municipal solid waste landfill. Provide the following information for each municipal solid waste landfill on which sewage sludge from your facility is placed. If sewage sludge is placed on more than one municipal solid waste landfill, attach additional pages as necessary.)

N/A

- a. Landfill name: _____
- b. Contact person: _____
Title: _____
Phone: () _____
Contact is: _____ Landfill Owner _____ Landfill Operator
- c. Mailing address: _____
Street or P.O. Box: _____
City or Town: _____ State: _____ Zip: _____
- d. Landfill location.
Street or route #: _____
County: _____
City or Town: _____ State: _____ Zip: _____
- e. Total dry metric tons per 365-day period of sewage sludge placed in this municipal solid waste landfill: _____ dry metric tons
- f. List, on this form or an attachment, the numbers of all other federal, state or local permits that regulate the operation of this municipal solid waste landfill:
Permit Number: _____ Type of Permit: _____

- g. Does sewage sludge meet applicable requirements in the Virginia Solid Waste Management Regulation, 9 VAC 20-80-10 et seq., concerning the quality of materials disposed in a municipal solid waste landfill?
_____ Yes _____ No
- h. Does the municipal solid waste landfill comply with all applicable criteria set forth in the Virginia Solid Waste Management Regulation, 9 VAC 20-80-10 et seq.? _____ Yes _____ No
- i. Will the vehicle bed or other container used to transport sewage sludge to the municipal solid waste landfill be watertight and covered? _____ Yes _____ No
Show the haul route(s) on a location map or briefly describe the route below and indicate the days of the week and time of the day sewage sludge will be transported.

Additional Information

Richmond WWTP
VPDES Permit #VA0063177
Outfall No. 001

SUPPLEMENT NO. S-B1

Question No.

Response

Item B.3.d.

The anaerobic digestion process at the facility reduces the volatile solids in the sewage sludge by a minimum of 38 percent serving as the method for pathogen reduction. This treatment in accordance 9 VAC 25-31-710 D is a process to significantly reduce pathogens. Therefore, in accordance with 9 VAC 25-31-710 B 3, sewage sludge treated by one of the processes to significantly reduce pathogens shall be classified as a Class B sewage sludge.

City of Richmond, Virginia

BIOSOLIDS ENVIRONMENTAL MANAGEMENT SYSTEM

Deputy Director	Robert Steidel
Wastewater Plant Superintendent II.....	Clair Watson
Wastewater Plant Superintendent I.....	Eric Whitehurst
Environmental Compliance Officer	
Biosolids Supervisor.....	Barbara Jackson

PUBLIC UTILITIES – OPERATIONS

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Document Control Log		
Title	Approved By:	Approval Date
Biosolids Environmental Management System	Operations Manager	
Revision Number	Description of Revisions	Date
00	Original Distribution	
01	Revisions resulting from initial internal audit: <ul style="list-style-type: none"> • Element 3: Updated Table 3.1 • Element 4: Updated procedures • Element 5: Updated Table 5.1 • Element 7: Corrected organization charts to reflect departmental re-organization; inserted additional key roles • Element 12: Added "Date of Last Review" to all element headers; revised Table 12.1 and deleted Table 12.2 • Element 13: updated table 13.1 • Corrected job titles of EMS team members throughout the manual. 	
02	<ul style="list-style-type: none"> • Element 3: Updated procedure 3. Updated Table 3.1. • Element 5: Revised goals & objectives in Table 5.1. Updated procedure 2. • Element 6: Updated procedure 6. • Element 8: Updated procedure 1(a). • Element 9: Updated procedure 4. • Element 12: Updated procedures 2, 4(c), and 6. Added "Retention Requirements" to Table 12.1. • Element 13: Deleted procedure 4. • Element 14: Revised all procedures. • Element 15: Updated procedure 1. • Element 16: Updated procedures 2, 5, 6, 7, and 8. • Element 17: Updated procedure 1(d). • Appendix 4-A: Added "Required Report" and "Due Date." • Appendix 6-A: Added revision date. 	
03	<ul style="list-style-type: none"> • Formatted all element headers to include effective date and reference to previous versions • Element 5: Updated Table 5.1 • Element 8: Added procedure 10. • Element 10: Added procedure 6. • Element 11: Added procedure 4. • Element 16: Updated procedures 1, 5, 6, 7, 8, 9, 10, and 12. • Appendix 4-A: Added BMP as regulation or other requirement 	
04	<ul style="list-style-type: none"> • Element 1: Updated Biosolids Handling cake percentage to 24%. • Element 4: Updated Location of Biosolids Management Report to be found on "P" drive. • Element 5: Objective 2.1 change target date and time for polymer dosing. 	

EMS Element 1— EMS Documentation
City of Richmond Public Utilities – Wastewater Treatment

Date of Last Review 7/22/08	Revision 2	Approval Signature Barbara D. Jackson	Revision / Effective Date 12/03/08	Supersedes all previous versions
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Purpose

The purpose of this document is to provide an Environmental Management System (EMS) Manual to document biosolids EMS procedures and activities.

General

The City of Richmond, Wastewater Treatment Plant, utilizes an activated sludge process to treat wastewater from domestic, commercial, and industrial customers in the City's service area. The City provides for the management and beneficial reuse of anaerobically digested biosolids through land application. This includes but is not limited to processing, loading, transporting, land applying and testing of biosolids. This Environmental Management System will coordinate with state, local and federal agencies as well as the general public to provide education and outreach on the benefits of land application.

Liquid Flow Stream

Wastewater enters the plant main pumping station from the City's collection system. It is screened using a bar rake and screen and then pumped to the primary sedimentation tanks for sludge and grit removal. Wastewater then flows by gravity through four parallel primary clarifiers, then to the aeration basin, and finally to the secondary clarifiers. It then flows through the sand filtration building and on to the chlorination process. The effluent is then dechlorinated and discharged to the James River.

Biosolids Handling

Biosolids at the Richmond Wastewater Treatment Plant are generated from the anaerobic digestion of primary and secondary sludge from the plant's activated sludge process. Primary sludge is pumped to gravity thickening tanks to allow more time for the sludge to thicken before being mixed with waste-activated sludge from the secondary clarifiers. Waste-activated sludge (WAS) is processed through the use of centrifuges where it is thickened prior to it being mixed with the primary gravity thickened sludge and then pumped to the digesters. Sludge that is displaced from the digesters (as new sludge is added) flows to one of two storage tanks. This sludge is then dewatered using centrifuges and the addition of polymer to aid in the dewatering process generating biosolids that meet EPA's 40 CFR part 503 Standards as a class "B" biosolid. The de-watered biosolids are stored on a concrete pad until the contract hauler/applicator can remove them for land application. Quantities of dewatered biosolids range from 18 to 45 dry tons per day with a volatile solids content of up to 6%. The pH ranges from 6.5 to 8.0. Cake solids 24 %.

Scope

The scope of this element applies to the EMS Manual and all related biosolids activities. The City of Richmond Biosolids EMS Program Manual consists of a general overview of our Biosolids EMS program, which includes an outline of the policies governing Biosolids EMS procedures for environmental management. In addition, it serves as a useful organizational index and as a cross-reference of procedures for other relevant documents.

Responsible Staff

The Biosolids Supervisor and the Biosolids EMS team are responsible for developing and maintaining the EMS manual with input from the Public Utilities Deputy Director, WWTP Superintendents, Environmental Compliance Officer, Utility Plant Supervisors, Chief Chemist, and interested parties.

Organization of This Manual

The City of Richmond Biosolids EMS manual consists of 17 elements covering five general categories. Each element represents part of the City's biosolids value chain. Table 1.1 describes the categories and the 17 elements.

Table 1.1 EMS Organization By Categories		
Category	Element #	Element
Policy	1	Documentation
	2	Biosolids Management Policy
Planning	3	Critical Control Points
	4	Legal and Other Requirements
	5	Goals and Objectives for Continual Improvement
	6	Public Participation in Planning
Implementation	7	Roles and Responsibilities
	8	Training
	9	Communication
	10	Operational Control of Critical Control Points
	11	Emergency Preparedness and Response
	12	EMS Documentation, Document Control, and Record Keeping
Measurement and Corrective Action	13	Monitoring and Measurement
	14	Nonconformance: Preventive and Corrective Action
	15	Performance Report
	16	Internal EMS Audit
Management Review	17	Periodic Management Review of Performance

Procedures

1. The Biosolids EMS manual is intended to be a "living" document. Revisions are expected as new information is obtained, changes to existing systems occur, and as experience is gained in administering an EMS.
2. Revisions to the EMS manual will be made by the Biosolids Supervisor on an as-needed basis. A comprehensive review/revision will be performed at least once every three years.

3. The Biosolids Supervisor will work with the Biosolids EMS Team on significant revisions to the EMS manual. Once revisions have been made, the Biosolids Supervisor will inform management of the availability of the revised EMS manual and will ensure all copies of the manual are updated. In addition, the most recent version of the EMS manual will be posted on the City's server in a public directory.
4. The Biosolids Supervisor will provide notification of significant revisions to interested parties through one or more of the communication tools listed under Element 9.
5. More information on revisions to the EMS manual and document control is available in Element 12 of this manual.

EMS Element 2 — Biosolids Management Policy City of Richmond Public Utilities – Wastewater Treatment				
Date of Last Review 7/22/08	Revision 3	Approval Signature Barbara D. Jackson	Revision / Effective Date 7/22/08	Supersedes all previous versions

Purpose

This element establishes the City's Biosolids Management Policy and procedures for revision. The purpose of the policy is to establish the guiding principles of the City of Richmond's Biosolids Environmental Management System (EMS).

Scope

This policy applies to all of the City's biosolids management activities and acts as a benchmark for current and future biosolids management.

Responsible Staff

The Biosolids Supervisor and the Biosolids EMS team are responsible for establishing a Biosolids Management Policy with input from the Public Utilities Deputy Director, WWTP Superintendents, and the Environmental Compliance Officer.

Procedures

1. The Public Utilities Deputy Director after consultation with the WWTP Superintendents and Biosolids Supervisor will establish the Biosolids Management Policy committing the City to following the principles of conduct set forth in the *Code of Good Practice*.
2. The Biosolids Supervisor will communicate the Biosolids Management Policy at training meetings to all staff involved in the biosolids value chain, as described in Element 8.
3. The Biosolids Supervisor will make the Biosolids Management Policy available to interested parties for their input. Input from interested parties will be evaluated in accordance with Element 6.
4. If revisions to the Biosolids Management Policy are needed because of changing conditions, the Biosolids Supervisor will notify the Public Utility Superintendents and the Deputy Director of the issue and suggested changes.
5. If revisions to the Biosolids Management Policy are approved by the Deputy Director, the Biosolids Supervisor will communicate the revised policy as per Step 1 above. The Biosolids Supervisor will also replace the revised policy in the EMS Manual.

The City of Richmond, Virginia has an Environmental Policy Statement that commits the City to protecting the environment while providing first class municipal activities, products, and services to its citizens, businesses, and visitors.

Biosolids Management Policy

Consistent with the City's Environmental Policy Statement, the Richmond Wastewater Treatment Plant is committed to the following principles of conduct set forth in the *Code of Good Practice*. The treatment plant will focus its available resources to produce Class B Biosolids. Further, it shall be the policy of the treatment plant to promote and practice the beneficial use of Biosolids and the reuse/recycling of resources. The treatment plant will strive to maintain, improve, and protect the environment through its treatment/production of biosolids. The treatment plant will make every effort to ensure that the public is not endangered by the treatment/production of biosolids at the treatment plant during transportation, storage or application at permitted sites. The treatment plant shall obey all applicable federal, state, county, and local laws, rules, and regulations. We pledge to "do the right thing" and uphold the following principles of conduct.

Code of Good Practice

The Code of Good Practice is a broad framework of goals and commitments to guide the production, management, transportation, storage, and use or disposal of biosolids – in short, a comprehensive EMS for biosolids. Those who embrace the Code and participate in the EMS commit to "do the right thing." Code subscribers and EMS participants pledge to uphold the following principles of conduct:

COMPLIANCE: To commit to compliance with all applicable federal, state, and local requirements regarding production at the wastewater treatment facility, and management, transportation, storage, and use or disposal of biosolids away from the facility.

PRODUCT: To provide biosolids which meet the applicable standards for their intended use or disposal.

ENVIRONMENTAL MANAGEMENT SYSTEM: To develop an environmental management system for biosolids that includes a method of independent third-party verification to ensure effective ongoing biosolids operations.

QUALITY MONITORING: To enhance the monitoring of biosolids production and management practices.

QUALITY PRACTICES: To require good housekeeping practices for biosolids production, processing, transport, storage, and final use or disposal operations.

CONTINGENCY AND EMERGENCY RESPONSE PLANS: To develop response plans for unanticipated events such as inclement weather, spills, and equipment malfunctions.

SUSTAINABLE MANAGEMENT PRACTICES AND OPERATIONS: To enhance the environment by committing to sustainable, environmentally acceptable biosolids management practices and operations through an EMS.

PREVENTIVE MAINTENANCE: To prepare and implement a plan for preventive maintenance for equipment used to manage biosolids and wastewater solids.

CONTINUAL IMPROVEMENT: To seek continual improvement in all aspects of biosolids management.

COMMUNICATION: To provide methods of effective communication with interested parties regarding the key elements of the Biosolids EMS, including information relative to system performance.

EMS Element 3 — Critical Control Points City of Richmond Public Utilities – Wastewater Treatment				
Date of Last Review 7/22/08	Revision 3	Approval Signature Barbara D. Jackson	Revision / Effective Date 7/22/08	Supersedes all previous versions

Purpose

Critical control points must be properly managed to ensure biosolids meet applicable regulatory requirements and continue to maintain public acceptance, ensuring maximum beneficial use.

Scope

This element pertains to all management categories in the biosolids value chain.

Responsible Staff

The Biosolids Supervisor, with support from Superintendents II and I, is responsible for oversight of critical control points in the biosolids value chain.

Procedures

1. Review and revision of the critical control points in the biosolids value chain will be triggered by:
 - A. Changes in operational controls
 - B. Changes in goals and objectives
 - C. Changes in legal or other requirements
 - D. Reconfiguration of equipment or installation of new equipment in the biosolids value chain
 - E. Nonconformances or findings from internal or third-party audits
2. Regardless of the conditions listed in #1, a review of all critical control points will be performed annually in conjunction with the annual review of goals and objectives. This review shall be performed no later than March 1.
3. Changes to the critical control points will be documented by the Biosolids Supervisor. If any significant operational changes occur that require a change to an identified critical control point or environmental impact associated with the critical control points, the Biosolids Supervisor will notify the NBP and the assigned third-party auditor.

4. The current list of critical control points is summarized in Table 3.1. Critical control points have associated operational controls listed in the table, and the appropriate work groups have standard operating procedures prescribing practices, monitoring, measurement, testing, and/or inspection methods used to ensure biosolids and biosolids activities meet or exceed all legal, quality, environmental protection, and public acceptance requirements.
5. Operational controls provide methods and procedures to ensure uniform and efficient management at each critical control point. To show the relationship between operational controls and critical control points and to streamline documentation of information, Element 10 information is integrated with critical control points in Element 3, Table 3.1.
6. Potential environmental impacts for each critical control point are listed in Table 3.1. Using appropriate SOPs and training, the City intends to maintain a low probability of occurrence and minimize any environmental impact.

Table 3.1 – Critical Control Points (CCPs) – Operations

Value-Chain Category	Critical Control Point	Operational Controls	Document Name/Location	Monitoring Frequency or Parameter	Record Location	Responsible Staff	Potential Environmental Impact
Wastewater Collection and Pretreatment							
	Significant Industrial Users (SIU) and Categorical Industrial Users (CIU)						
		SIU and CIU permits	SIU and CIU Permittee	Every quarter with City monitoring the 1 st and 3 rd qtr. The SIU and CIU monitoring the 2 nd and 4 th qtrs.	G: drive	Environmental Compliance Officer	<ul style="list-style-type: none"> • Inhibition of treatment plant process • Interference with collection system • Accumulation of pollutants in biosolids
		Inspection and monitoring procedures	SOP for Inspection and monitoring procedures	Inspect semi-annually	G: drive	Environmental Compliance Officer	
		Enforcement Response Plan	City of Richmond ERP	Once every 5 years	G: drive	Environmental Compliance Officer	
		VPDES Pretreatment Program	VPDES Permit	Once every 5 years	G: drive	Environmental Compliance Officer	<ul style="list-style-type: none"> • Inhibition of treatment plant process • Accumulation of pollutants in biosolids
		Sample collection/analysis procedures	SOP for Sampling Preparation SOP for Split Sampling	Every quarter with City monitoring the 1 st and 3 rd qtr. The SIU and CIU monitoring the 2 nd and 4 th qtrs.	G: drive	Environmental Compliance Officer	
		SIU accidental spill plans	SOP for Spill Reporting and Response	Yearly	G: drive	Environmental Compliance Officer	<ul style="list-style-type: none"> • Inhibition of treatment plant process • Interference with collection system • Accumulation of pollutants in biosolids
	Hauled Waste Discharge						
		Hauled waste procedure permits	per hauler	per dump	G: drive	Environmental Compliance Officer	<ul style="list-style-type: none"> • Inhibition of treatment plant process • Accumulation of pollutants in biosolids
Wastewater Treatment and Solids Generation							
	Bar screen						
	MPS	Bar screen Procedure	Main Pumping Station Bar Screens/ SOP Manual	Daily – Visual (walkthrough) Clean as needed	Operator 10	Utility Plant Operator Supervisor II Equip. Operator	<ul style="list-style-type: none"> • Plastics, grit, and other unwanted materials in the primary digesters • Potential for odors and noise

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Value-Chain Category	Critical Control Point	Operational Controls	Document Name/Location	Monitoring Frequency or Parameter	Record Location	Responsible Staff	Potential Environmental Impact
	Grit Removal						
	MPS	Grit removal Procedure	Preliminary Grit Channels/ SOP Manual	Daily – Visual (walkthrough) Clean as needed	Operator 10	Utility Plant Operator Supervisor II Equip. Operator	• Plastics, grit, and other unwanted materials in the primary digesters Potential for odors and noise
	Primary Treatment						
	Primary Sludge	Primary clarifier Procedure	Primary Sludge Tanks / SOP Manual	Daily - Blanket level Flight check	Utility Plant Operator Supervisor II Office	Utility Plant Operator Supervisor II	• Increased biosolids volumes due to inadequate settling • Potential for odors
		Primary Sludge Procedure	Primary Sludge Pumping/ SOP Manual	Visual Flow rates Pump operation	Operator 10	Utility Plant Operator Supervisor II	
	Secondary treatment						
	Aeration	Aeration Basin Procedure	Aeration/ SOP Manual	Daily – DO MLSS Settleometers East /west solids balance pH	Operator 10	Utility Plant Operator Supervisor II	• Inadequate settling • Pass through to James River • Potential for odors
		Secondary Clarifier	Secondary clarifier Procedure	Secondary Clarifiers/ SOP Manual	Temperature Blanket level Flight check	Operator 10 Utility Plant Operator Supervisor II Office	
	Solids Stabilization, Conditioning, and Handling						
		Primary Gravity Thickening					
		Primary sludge grit removal SOP	The Cyclone Degritters / SOP Manual	Visual	Operator 10	Biosolids Team Equip. Operator	

Table 3.1 – Critical Control Points (CCPs) – Operations

Value-Chain Category	Critical Control Point	Operational Controls	Document Name/Location	Monitoring Frequency or Parameter	Record Location	Responsible Staff	Potential Environmental Impact
	Gravity Thickening Tank	Gravity thickening tanks SOP	The Gravity Thickening Tanks / SOP Manual	Daily – Feed rate % Sludge solids % Overflow solids % Feed Solids Gallons pumped to digesters Bi-Monthly – % Volatile Solids	Operator 10	Biosolids Team Utility Plant Operator	<ul style="list-style-type: none"> • Potential for odors and noise • Increased biosolids volumes that need to be dewatered transported and managed
	Secondary Thickening						
		Thickening centrifuges SOP	Thickening Centrifuges / SOP Manual	Daily % Cake solids % Feed solids, % Centrate solids total gallons: waste and thickened	Operator 10	Biosolids Team Utility Plant Operator	<ul style="list-style-type: none"> • Potential for odors and noise • Increased biosolids volumes that need to be dewatered transported and managed
		WAS Procedure	Waste Activated Sludge/ SOP Manual	Visual inspection	N/A	Biosolids Team Utility Plant Operator	Increased biosolids volumes that need to be dewatered transported and managed
	Digesters						
		Digester Procedure	Control Building Digesters #1-5 / SOP Manual	Bi-Monthly- % Volatile Solids Reduction Daily- TA/VA pH Temperature	Operator 10	Biosolids Team	<ul style="list-style-type: none"> • Potential for odors, vector attraction (e.g., flies) • Inadequate destruction of potentially pathogenic organism
		Storage Tank #6 Procedure	Sludge Digestion Storage Tank #6 / SOP Manual	Daily – Levels Temperature	Operator 10 Utility Plant Operator Supervisor II Office	Biosolids Team	

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Value-Chain Category	Critical Control Point	Operational Controls	Document Name/Location	Monitoring Frequency or Parameter	Record Location	Responsible Staff	Potential Environmental Impact
	Dewatering						
	Dewatering	Dewatering centrifuge procedure	Dewatering Building / SOP Manual	Daily- % solids - Cake % solids – Centrate % solids -sludge feed Gallons processed	Operator 10	Biosolids Team	
Solids Storage and Transportation							
	Truck Loading at Dewatering						
		Truck loading procedure at dewatering	EMS Critical Steps	Daily visual inspection	SOP Manual; Nutri-Blend	Nutri-Blend	• Potential for odors • Runoff to headworks • Potential for spills
		Loading area cleanup	EMS Critical Steps	Daily visual inspection	SOP Manual; Nutri-Blend	Nutri-Blend	
		On-plant hauling requirements	EMS Critical Steps	Daily visual inspection	SOP Manual; Nutri-Blend	Nutri-Blend	
		Spills procedure	EMS Critical Steps	Daily visual inspection	SOP Manual; Nutri-Blend	Nutri-Blend	
	Storage Pad						
		Storage pad procedure	EMS Critical Steps	Daily- Visual inspection Quarterly – Volatiles	SOP Manual; Nutri-Blend	Biosolids Team Nutri-Blend	• Potential for odors • Overflow and run off to headworks
	Truck Washing						
		Truck washing procedure	EMS Critical Steps	Daily during application / per loading	SOP Manual; Nutri-Blend	Nutri-Blend	• Potential for odors • Wash water return to headworks
	Truck Loading at Storage Pad						
		Truck loading procedure at storage pad	EMS Critical Steps	Daily visual inspection	SOP Manual; Nutri-Blend	Nutri-Blend	Potential for odors

Table 3.1 – Critical Control Points (CCPs) – Operations

Value-Chain Category	Critical Control Point	Operational Controls	Document Name/Location	Monitoring Frequency or Parameter	Record Location	Responsible Staff	Potential Environmental Impact
	Transportation Routes						
		Vicinity maps	Permit Book	Annually	Nutri-Blend's Office	Nutri-Blend	• Contamination of public roadways • Contamination of adjacent waterways
		Spills procedure	EMS Critical Steps	Each occurrence Number of spill	SOP Manual; Nutri-Blend's Office	Nutri-Blend	
Land Application							
	Application Site Location						
	Site selection procedure	EMS Critical Steps	Each site	Nutri-Blend's Office	Nutri-Blend	• Exceedances of volumetric loading rates at application sites • Potential for odors • Raise pollutant levels in soil	
	Method for adjoining property owner notification	EMS Critical Steps	Each site	Nutri-Blend's Office	Nutri-Blend		
	Method for load rate	EMS Critical Steps	Each site	Nutri-Blend's Office	Nutri-Blend		
	Solids quality monitoring	EMS Critical Steps	Daily during application	Nutri-Blend's Office	Nutri-Blend		
	Nutrient/metals monitoring procedure	EMS Critical Steps		Nutri-Blend's Office	Nutri-Blend		
	Method for site setbacks	Va. Standards and Criteria	Site specific	Nutri-Blend's Office	Nutri-Blend		
	Site limits specifications	Va. Standards and Criteria	Site specific	Nutri-Blend's Office	Nutri-Blend		
	Land application						
	Application procedure	EMS Critical Steps		Nutri-Blend's Office	Nutri-Blend	Potential for odors Potential for spills	
	Site monitoring / post application site management						
	Method for soil monitoring for nutrients	EMS Critical Steps		Nutri-Blend's Office	Nutri-Blend	• Exceedances of volumetric loading rates at application sites	

Table 3.1 – Critical Control Points (CCPs) – Operations

Value-Chain Category	Critical Control Point	Operational Controls	Document Name/Location	Monitoring Frequency or Parameter	Record Location	Responsible Staff	Potential Environmental Impact
		Daily site inspection record	Richmond2007.xls Richmond07.xls	Daily during application	Nutri-Blend/A	Nutri-Blend	<ul style="list-style-type: none"> • Potential for odors • Raise pollutant levels in soil
		Annual report to DEQ		January 15 Annual	Nutri-Blend's Office	Nutri-Blend	

EMS Element 4 — Legal and Other Requirements City of Richmond Public Utilities – Wastewater Treatment				
Date of Last Review 7/22/08	Revision 4	Approval Signature Barbara D. Jackson	Revision / Effective Date 12/03/08	Supersedes all previous versions

Purpose

The purpose of this element is to summarize the process used by the City of Richmond Public Utilities to identify and track legal and other requirements applicable to the biosolids program.

Scope

This procedure applies to biosolids management activities at all critical control points throughout the biosolids value chain.

Responsible Staff

The Biosolids Supervisor and Utility Plant Superintendents II and I are responsible for tracking all federal, state, and local legal and regulatory requirements pertaining to the Richmond Wastewater Treatment Plant biosolids.

Procedure

1. Sources of information about regulations and potential effects on the City's biosolids program are as follows:
 - A. Updates from the National Biosolids Partnership (NBP) including periodic biosolids update e-mails are available at <http://www.biosolids.org>
 - B. Information from the Virginia Department of Health is available at <http://www.biosolids.state.va.us>
 - C. Information from the Virginia Biosolids Council is available at <http://www.virginiabiosolids.com>
 - D. Information from the National Association of Cleanwater Agencies (NACWA) bulletin service (Alert) regarding wastewater treatment and biosolids regulations is available at <http://www.amsa-cleanwater.org>
 - E. Federal Environmental Protection Agency regulations are available and updated through the Federal Register website at <http://www.gpoaccess.gov/cfr/index.html>
 - F. The State of Virginia Department of Environmental Quality updates regulations on the following website: <http://www.deq.state.va.us>

2. These information sources will be used to update and/or revise the City of Richmond's pretreatment, wastewater treatment, and biosolids procedures using the process outlined below. A list of legal requirements is found in Table 4.1.
3. Changes in legal requirements affecting the biosolids value chain are communicated to staff and affect the operations of the biosolids value chain in the manner described below.
 - A. The Utility Plant Superintendent II tracks all federal, state and local legal and regulatory requirements applying to the Richmond Wastewater Treatment Plant biosolids.
 - B. In the case of new permitted industries, the Environmental Compliance staff informs the Biosolids Supervisor of any new industrial/commercial sewer users that could impact operation of the wastewater treatment plant.
 - C. Information gathered by the Environmental Compliance staff is evaluated for applicability to the biosolids value chain. Applicable regulatory information and updates are passed on to the Biosolids Supervisor through e-mail, meetings, or other means of communication.
 - D. Regulatory information that is general or preliminary in nature is passed on to the EMS Team for information only. The EMS Team will monitor the progress of pertinent legislation to determine when action is needed.
 - E. If the regulatory or other updates require action, the Utility Plant Superintendent II will assign tasks related to the regulatory or process changes, ensuring they are accomplished in a timely manner.
 - F. Changes in legal and other requirements may trigger changes in operational controls, SOPs monitoring and measurement, or other practices described in the Biosolids EMS Manual. The supervisor in charge of the affected area will ensure associated changes are made to the appropriate EMS Manual element(s) and will bring revisions to the next regularly scheduled Biosolids EMS team meeting.

Table 4.1 List of Relevant Legal and Other Requirements

Regulation or Other Requirement	Required Report or Record	Due Date	Report or Record Location
Federal			
Federal regulations on use and disposal of biosolids – 40 CFR Part 503 and amendments	Yearly Report	February	Filed in Utility Plant Superintendent II
Federal pretreatment regulations – 40 CFR Part 403 and amendments	N/A	N/A	N/A
State			
VPDES Permit for the Richmond Wastewater Treatment Plant	Discharge Bi-Monthly Report	10 th of each month	Operator 10 on server
	Biosolids Annual Report	February annually	Operator 10 on server
	Biosolids Management Report	Upon permit renewal or as required	P Drive
	Pretreatment Annual Report	January 31 annually	Environmental Compliance Officer's Office
Biosolids Management Plan	Biosolids Land Application Record	Upon request by VDH	Nutri-Blend's Office
	Biosolids and Soil Sampling Analysis	Upon request by VDH	Nutri-Blend's Office
	Biosolids Annual Report	January 15	Nutri-Blend's Office
	Site Approval	Upon request by VDH	Nutri-Blend's Office

EMS Element 5 — Goals and Objectives for Continual Improvement City of Richmond Public Utilities – Wastewater Treatment				
Date of Last Review 7/22/08	Revision 4	Approval Signature Barbara D. Jackson	Revision / Effective Date 12/03/08	Supersedes all previous versions

Purpose

The purpose of this element is to drive the continual improvement of the biosolids program by establishing long-term biosolids program goals and associated short-term objectives for biosolids management activities. This element also establishes an action plan to implement goals and objectives based upon SMART (specific, measurable, achievable, relevant, and time-bounded) criteria.

Scope

This element applies to all critical control points in the biosolids value chain and all EMS elements.

Responsible Staff

The Biosolids EMS Team is responsible for setting biosolids goals and objectives. The Public Utilities Deputy Director, Utility Plant Superintendents II and I, Biosolids Supervisor, and other staff in the biosolids value chain are solicited and encouraged to give their input to the goals and objectives setting and review process.

Procedure

1. The Biosolids EMS Team determines goals and objectives based on the City's Biosolids Management Policy, adherence to SMART criteria, and input as listed in this procedure. Goals are developed to address each of the four NBP EMS outcome areas: environmental performance, regulatory compliance, relations with interested parties, and quality biosolids management practices.
2. The Biosolids Supervisor tracks progress toward current goals and objectives using the Goals Action Plan form. The active copy of this form is maintained on the City's internal server. The action plan lists interim steps for each objective, resources required, expected completion dates, and progress toward each milestone and objective.
3. Goals and objectives are reviewed no less than quarterly at regular Biosolids EMS team meetings. On an annual basis to occur no later than April 1, goals and objectives will be revised, or documentation will be made that existing goals and objectives remain applicable for advancement of the Biosolids EMS program.
4. More frequent revision of goals and objectives may be triggered by one or more of the following considerations:

- A. Changes to the City's biosolids management policy
 - B. Input (if any) received from interested parties, the public, regulators, or staff involved in the biosolids value chain
 - C. Response to regulatory changes, regulatory noncompliance, or Biosolids EMS program nonconformance
 - D. Changes in direction from management
5. The goals and objectives revision process will include the following steps:
- A. The Biosolids EMS Team will evaluate the need for goals revision based on considerations as specified in #2 and #3 above.
 - B. The Biosolids EMS Team will draft revisions to the goals and objectives.
 - C. The Biosolids EMS Team will seek input from biosolids-value-chain staff, interested parties, and the public by mailing letters to interested parties, posting information on the City's website, requesting input at staff meetings, and other outreach methods as described in Elements 6 and 9.
 - D. All input will be evaluated by the Biosolids EMS Team.
 - E. Draft goals and objections will be reviewed and approved by the Deputy Director.
 - F. A final revision will be made by the Biosolids EMS team and incorporated into the City's Biosolids EMS manual.
6. Goals are established and prioritized using the following criteria:
- A. Consistent with the NBP *Code of Good Practice*
 - B. Consistent with the mission statement and policy
 - C. Response to input from biosolids-value-chain staff and the public, including interested parties
 - D. Linked with critical control points
 - E. Available funding
 - F. Personnel resources to carry out the goals and objectives
 - G. Regulatory changes
7. Goals and objectives will be prioritized by the supervisors of the work groups involved, with the understanding they will be performed to maintain legal requirements and to comply with the Biosolids EMS guidelines. The Utility Plant Superintendent II will assign responsibility for any goals and objectives not clearly defined by work group duties.

Table 5.1 – Biosolids EMS Goals and Objectives

Goals	Objectives	Interim Steps	Person(s) Responsible	Resources	Target Date	Progress to Date
Goal 1 – Meet or surpass applicable regulatory compliance requirements associated with biosolids product <i>Outcome(s) Addressed: Environmental Performance, Regulatory Compliance</i>						
Objective 1.1	Zero notices of permit violations from DEQ related to management of biosolids	<ul style="list-style-type: none"> Analyze at least one biosolids sample bi-monthly per 503 requirements 	Biosolids Supervisor Nutri-Blend	Staff time, financing for contract lab analysis	Bi-monthly	
Objective 1.2	Establish better staff training in Biosolids Operations	<ul style="list-style-type: none"> Set-up a formal training program for new and existing employees 	Utility Plant Superintendent I	Staff Time	Ongoing	
Objective 1.3	Evaluate and update Biosolids Operations maintenance procedures	<ul style="list-style-type: none"> Review and update as needed SOPs or manuals for maintenance procedures Set-up training for maintenance personnel 	Maintenance Superintendent, Utility Plant Superintendent II	Staff Time	Ongoing	
Goal 2 – Optimize dewatering centrifuge operations/storage capacity <i>Outcome(s) Addressed: Quality Biosolids Management Practices, Environmental Performance</i>						
Objective 2.1	Optimize dewatering centrifuge operation to maintain a monthly average of 24% solids	<ul style="list-style-type: none"> Evaluate centrifuge SOP at meeting with operators Training staff on optimal centrifuge operation 	Biosolids Supervisor	Staff Time	11/17/08	01308 24.3% Cake
Objective 2.2	Review polymer dosing and identify methods to minimize	<ul style="list-style-type: none"> Graph one year's polymer dosing and rate Meet with operators to review results Evaluate and update centrifuge SOP based on findings 	Biosolids Supervisor	Staff Time	10/24/08	8/15/2008 ON P DRIVE Continue to monitor. Change polymer fill time to 24 minutes
Goal 3 – Improve public understanding of biosolids land application in areas where Richmond DPU's biosolids are applied <i>Outcome(s) Addressed: Relations with Interested Parties</i>						
Objective 3.1	Nutri-Blend conducts outreach activities in areas where Richmond's Biosolids are applied	<ul style="list-style-type: none"> Identify events and dates with Nutri-Blend Outreach dates and protocol provided by Nutri-Blend 	Nutri-Blend, Public Relations Manager	Staff Time	1/01/08	1/11/08 On "P" drive- Ongoing

Table 5.1 – Biosolids EMS Goals and Objectives

Goals	Objectives	Interim Steps	Person(s) Responsible	Resources	Target Date	Progress to Date
Objective 3.2	Send out information letter to County Biosolids Monitors from Nutri-Blend and City of Richmond	<ul style="list-style-type: none"> Identify County Inspectors Develop with team communication objectives and then determine appropriate manner to accomplish objectives, based on audience (letter, email, other)	Biosolids Supervisor, Nutri-Blend, Public Relations Manager	Nutri-Blend & Staff Time	Ongoing	
Objective 3.3	Continue tours of the WWTP		Biosolids Supervisor	Staff Time	On-going	

EMS Element 6 — Public Participation in Planning City of Richmond Public Utilities – Wastewater Treatment

Date of Last Review 7/22/08	Revision 3	Approval Signature Barbara D. Jackson	Revision / Effective Date 7/22/08	Supersedes all previous versions
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Purpose

The purpose of this procedure is to establish public involvement in the planning process, including input regarding biosolids program performance improvements and third-party verification process. This procedure includes activities designed to enhance the public image of the City's biosolids treatment and application programs.

Scope

The City has a well managed biosolids program which has been in operation for over 30 years. During this time, there has been little to no interest in the City's biosolids program from the public.

Public confidence continues to remain indifferent and public interest in participating in the City's planning process is relatively low. The City's proactive approach to providing the public with meaningful opportunities to provide input in the planning processes is consistent with legal requirements, the degree of current public interest, historical levels of public involvement and related local circumstances.

Responsible Staff

The Utility Plant Superintendent II and I, The Biosolids Supervisor has primary responsibility for this element. The Public Relations Manager is responsible for all public information.

Procedure

1. Interested parties are identified by meeting one of the following criteria:
 - A. Owners of land permitted for biosolids application
 - B. Owners and/or residents of property adjacent to land approved for biosolids application
 - C. Representatives of local, state, and federal agencies including the Virginia Department of Environmental Quality, Virginia Department of Conservation and Natural Resources, Virginia Department of Health, and others

- D. Community groups including the Chesapeake Bay Foundation and Virginia Tech Extension educators.
 - E. Any other individual or organization that shows an interest in the City's biosolids program by contacting staff, attending a public meeting, or requesting information.
2. Interested parties will be removed from the list either at their own request verbally or in writing, or when they fail to meet the criteria listed above.
 3. The list of interested parties is maintained on the City's server. The Biosolids Supervisor is responsible for updating and maintaining this list.
 4. The City seeks public participation from interested parties through formal and informal methods. This includes, but is not limited to, opportunities for comment at City Council meetings and work sessions, and invitation for comments on the City of Richmond's website. Biosolids information is available on the DPU page at the City's website. City Council meetings are advertised in accordance with rules governing public meetings in the state of Virginia.
 5. The City documents public input in an electronic communications log maintained on the City's server by the Public Relations Manager and is accessible by the Biosolids Supervisor.
 6. Response to public input varies with the nature of the comment. City staff acknowledges receipt of the input within two business days, and works to produce a full response within one week. General questions or concerns may be addressed by any Biosolids EMS Team member in coordination with the Public Relations Manager. More technical questions are dealt with by the Biosolids Supervisor in coordination with the Public Relations Manager.
 7. All public input is discussed at Biosolids EMS Team meetings and any necessary action items are assigned. Input is noted with respect to its potential impact on biosolids goals or procedures, or the Biosolids EMS manual. The results of the public comment are also noted in the Contact Log with the original comment. A summary of significant interested-party input is included with the annual biosolids report.
 8. In addition to the procedures above, the City also receives public input through their biosolids contractor, Nutri-Blend. Nutri-Blend solicits public input through their Communication Strategy, which is on file. Nutri-Blend shares this information with the City via phone calls, e-mail, or monthly reports depending on the nature and urgency of the comment, complaint, or input.

EMS Element 7 — Roles and Responsibilities City of Richmond Public Utilities – Wastewater Treatment				
Date of Last Review 7/22/08	Revision 3	Approval Signature Barbara D. Jackson	Revision / Effective Date 7/22/08	Supersedes all previous versions

Purpose

The purpose of this element is to define the organizational roles and responsibilities for biosolids management activities throughout the biosolids value chain.

Roles and Responsibilities accomplish three main functions:

1. Biosolids value chain and EMS employees know their role.
2. The roles of key biosolids value chain and EMS personnel are identified.
3. Responsibilities are assigned to biosolids value chain personnel with the authority and resources to carry out the assigned duties.

Scope

This Element assigns roles and responsibilities to all biosolids management operational controls, Biosolids EMS Elements, and goals and objectives.

Responsible Staff

The Biosolids Supervisor and Biosolids EMS Team are responsible for reviewing assigned roles and responsibilities. The Biosolids Supervisor, Utility Plant Superintendent II and I, and Environmental Compliance Officer assign roles and responsibilities throughout the biosolids value chain.

Procedure

1. Each Element in the Biosolids EMS Manual lists responsible staff for that element. Table 7.1 summarizes the Roles and Responsibilities for each EMS Element.

Table 7.1 – Biosolids EMS Responsibilities		
Element	Element Description	Roles & Responsibilities <review once EMS is drafted>
1	Documentation of Environmental Management System (EMS) for Biosolids	Biosolids Supervisor, Biosolids EMS Team
2	Biosolids Management Policy	Biosolids Supervisor, Biosolids EMS Team
3	Critical Control Points	Biosolids Supervisor, Utility Plant Superintendent II and I
4	Legal and Other Requirements	Biosolids Supervisor, Utility Plant Superintendent II and I
5	Goals and Objectives for Continual Improvement	Biosolids EMS Team
6	Public Participation in Planning	Biosolids Supervisor
7	Roles and Responsibilities	Biosolids EMS Team, Biosolids Supervisor
8	Training	Biosolids Supervisor, Utility Plant Superintendent I
9	Communication	Biosolids Supervisor, Utility Plant Superintendent II and I, Public Relations Manager, and Nutri-Blend
10	Operational Control of Critical Control Points	WWTP Superintendent, Biosolids Supervisor, Utility Plant Supervisor
11	Emergency Preparedness and Response	Biosolids Supervisor and Biosolids EMS Team
12	Documentation, Document Control and Record Keeping	Biosolids Supervisor
13	Monitoring and Measuring	Utility Plant Superintendent II and I, Biosolids Supervisor, Chief Chemist/Quality Control Officer
14	Nonconformance: Preventative and Corrective Action	Biosolids Supervisor, Environmental Compliance Officer, and Utility Plant Superintendent II and I
15	Performance Report	Biosolids Supervisor and Biosolids EMS Team
16	Internal EMS Audit	Biosolids Supervisor
17	Periodic Management Review of Performance	Biosolids Supervisor , Biosolids EMS Team

2. The Biosolids Supervisor shall review annually with the Utility Plant Superintendent II and I and Environmental Compliance Officer the individuals assigned to roles relevant to the Biosolids EMS and will update Table 7.1.
3. Specific Roles and Responsibilities are also listed in the following tables:
 - A. Table 3.1 – Critical Control Points and Operational Controls
 - B. Table 5.1 – Biosolids EMS Goals and Objectives

4. Organizational charts for the Public Utilities Department and biosolids value chain are available in the Administration Office at the WWTP.

Key Biosolids EMS Roles and Responsibilities

Utility Plant Superintendent II and I

The Richmond Wastewater Treatment Plant has Utility Plant Superintendents II and I. Together, the Utility Plant Superintendents are responsible for the management of the Wastewater Treatment Plant, and virtually all personnel who work in the biosolids value chain. The Utility Plant Superintendents report directly to the Public Utilities Deputy Director and have the authority to allocate staff time and monetary resources within the Operations Division. The Utility Plant Superintendents are specifically responsible for selecting the Biosolids EMS Team. Additionally, the Utility Plant Superintendents participate in the Biosolids EMS Management Review as described in Element 17.

Biosolids Supervisor

This individual is assigned in writing by the Utility Plant Superintendent II. The Biosolids Supervisor has general responsibility to ensure the policies and procedures related to the Biosolids EMS are carried out. The specific tasks assigned to the Biosolids Supervisor include:

- Facilitating the Biosolids EMS Team meetings
- Providing EMS training or assigning training responsibilities to qualified staff
- Maintaining control of all EMS-related documents
- Ensuring internal and third-party audits are conducted as required by the EMS
- Reviewing all nonconformance and corrective action forms to ensure the appropriate work group takes action and documents corrective actions
- Compiling information for the annual biosolids performance report and the annual management review
- Assisting with the development of the Biosolids Public Participation and Outreach Plan
- Maintaining the list of interested parties
- Responding to general questions and comments about the biosolids program in coordination with the Public Relations Manager
- Assisting in developing outreach materials such as pamphlets

While the Biosolids Supervisor may delegate any of these tasks to other staff, he/she is responsible for ensuring the tasks are completed in accordance with the EMS Manual and any other policies or procedures.

Biosolids EMS Team

The Biosolids EMS Team is appointed by the Utility Plant Superintendent II. Team members are selected from various work groups associated with the biosolids value chain. The Biosolids EMS Team works under the direction of the Biosolids Supervisor. The Biosolids Supervisor may assign certain tasks to team members. As a group, the Biosolids EMS Team will review and evaluate progress toward goals and objectives quarterly. The Biosolids EMS Team also reviews interested party input relative to the Biosolids EMS, roles and responsibilities, emergency preparedness policies, and the annual management review.

Biosolids EMS Internal Audit Team

The Internal Audit Team will be appointed by the Utility Plant Superintendent II. The Audit Team is responsible for ensuring the Biosolids EMS Manual, the day-to-day operation of the WWTP facility, and land application practices associated with the biosolids program agree with the requirements of the NBP EMS program. The Audit Team will provide a summary of findings and conclusions to the EMS Team.

Environmental Compliance Officer

The Environmental Compliance Officer is responsible for the Industrial Pretreatment Program. Specific responsibilities of the Environmental Compliance Officer include, but are not limited to:

- Preparing the Annual Pretreatment Report for DEQ
- Permitting, sampling, and inspection of Categorical Industrial Users and Significant Industrial Users, and monitoring and inspection of Non-discharging Categorical Industrial Users
- Describing Biosolids CCPs and OCs associated with the pretreatment program
- Tracking and reporting on changes to regulatory and other legal requirements that may affect the EMS program
- Ensuring adequate monitoring and measurement practices are in place to evaluate performance of the pretreatment program relevant to the biosolids
- Contributing to the Biosolids Management Program Performance Report

Utility Plant Supervisor

The Utility Plant Supervisor is responsible for the day-to-day operation of the wastewater treatment plant. The Utility Plant Supervisor evaluates WWTP staffing needs to ensure adequate staff is available to operate the facility and plans, directs, and monitors the long-range work plans and activities performed in the wastewater treatment plant. Specific responsibilities include, but are not limited to:

- Ensuring compliance with state and federal permit requirements, rules, and regulations with respect to the WWTP
- Managing Biosolids CCPs and OCs associated with the WWTP in absence of the Biosolids Supervisor.

- Ensuring adequate monitoring and measurement practices are in place to evaluate performance of the WWTP and Biosolids in absence of the Biosolids Supervisor.
- Contributing to the Biosolids Management Program Performance Report

Superintendent of Plant Maintenance and Maintenance Staff

The Superintendent of Plant Maintenance is responsible for daily maintenance of the WWTP and associated facilities. Maintenance staff performs routine, preventive, and emergency maintenance on a variety of equipment in the biosolids value chain. The Superintendent of Plant Maintenance and maintenance staff coordinates with the WWTP staff via the Mainsaver™ system to identify equipment for repair in order to maintain peak operational control of the WWTP process.

Water and Wastewater Quality Control Supervisor

The Water and Wastewater Quality Control Supervisor ensures that the laboratory procedures related to biosolids are being performed according to regulations and standards.

Chief Chemist

The Chief Chemist ensures that all laboratory tests related to biosolids are being performed accurately and on time.

EMS Element 8 — Training City of Richmond Public Utilities Wastewater Treatment				
Date of Last Review 7/22/08	Revision 3	Approval Signature Barbara D. Jackson	Revision / Effective Date 7/22/08	Supersedes all previous versions

Purpose

The purpose of this procedure is to describe the training program the City of Richmond will use in its Biosolids Management Program to ensure affected employees are proficient in their EMS responsibilities and biosolids management activities.

Scope

This element applies to all training related to the biosolids value chain, performed either in-house or off-site by a qualified instructor.

Responsible Staff

The Biosolids Supervisor is responsible for ensuring Biosolids and EMS-related training occurs in accordance with the following procedures. He/she may delegate the responsibility for conducting training to other City staff or qualified instructors as necessary.

Procedure

1. Training is an on-going process for all employees. Employees throughout the Wastewater Treatment Plant are encouraged to pursue professional development and job-skill training. Training opportunities include:
 - a. Certification programs. WWTP operator certification (levels 1-4) and professional training programs are available at local community colleges.
 - b. OJT. Structured on-the-job (OJT) training is provided to new employees.
 - c. Continuing Education. Workshops, seminars, and other courses with continuing education credits are offered by the VA DEQ, Water Environment Federation (WEF), Sacramento Correspondence Courses, Mountain Empire Community College and other professional or trade organizations.
2. Training on the City's Biosolids EMS program is conducted throughout the year. The Biosolids Supervisor works with the appropriate supervisors to identify all employees required to receive EMS training and the level of EMS training needed, based on their duties relative to the biosolids value chain.

3. Biosolids EMS training can take place using any of the following formats:
 - a. Formal training meetings
 - b. Workgroup-specific staff meetings
 - c. Individual training from appropriate supervisors
 - d. Individual review of training materials
4. Training is divided into general EMS training and advanced EMS training.
 - a. General training includes an overview of the biosolids program, a description of the Biosolids EMS, safety training, and emergency response information.
 - b. Advanced EMS training includes information on biosolids legal and quality requirements and relevant SOPs.
5. New, re-assigned, and temporary employees working in the biosolids value chain will be required to view the most recent version of the appropriate EMS training materials within three months of their hire date.
6. Employees in the biosolids value chain will receive general EMS training as well as advanced training on SOPs relevant to their work group. General training will be provided at least annually and advanced training will be provided when required by changes in equipment, procedures, or at the supervisor's discretion. Employees with EMS-related tasks but who are not in the biosolids value chain will receive general training at least annually.
7. Biosolids EMS training records are kept electronically along with other training records in the electronic training database in "P" drive.
8. Employees who miss a regularly scheduled training session will be required to review the training material and sign a form indicating they have done so within four weeks of their return to work.
9. Training for safety, emergency preparedness and spill response is conducted on a periodic basis in accordance with Element 11.

EMS Element 9 — Communication City of Richmond Public Utilities – Wastewater Treatment				
Date of Last Review 7/22/08	Revision 3	Approval Signature Barbara D. Jackson	Revision / Effective Date 7/22/08	Supersedes all previous versions

Purpose

The purpose of this procedure is to describe the communication and public outreach program surrounding the City's Biosolids Management Program.

Scope

This element applies to all communication concerning the biosolids value chain and all EMS elements.

Responsible Staff

The Biosolids Supervisor, Utility Plant Superintendents II and I, Public Information Manager, DIT, and Nutri-Blend are primarily responsible for this element.

Procedure

The process of designing the website will be by the firm of Crockett-Hooks, reviewed by the Public Information Manager and implemented by DIT

Communication and public outreach may be achieved as described below.

1. Public participation in planning is also listed in EMS Element 6 and reference should be made to these items. Element 6 also describes how the interested party list is generated and maintained. Public meetings are scheduled to address any concerns.
2. General regulatory and legal information is available to the public upon request. A pamphlet printed by the National Biosolids Partnership (NBP) is available to provide information on biosolids.
3. The City's Public Information Manager will issue press releases as appropriate, regarding developments in the City's Biosolids EMS program. Completion of key EMS stages, including completion of a third-party audit and attainment of EMS certification, will result in press releases to update the public on the City's Biosolids EMS program.
4. City of Richmond staff will promote the biosolids program through public meetings and tours of the WWTP as appropriate, targeting the general public and/or specific school, industrial, and business sectors.
5. Staff maintains records of all public outreach including presentations, facility tours, and/or public meetings. Records of attendees are used to update the active list of interested parties.

6. Internal communication is critical to facilitate effective biosolids treatment, transfer, biosolids application, and compliance with regulations. The key treatment sections are listed below, with critical communication pathways noted.
 - A. Pretreatment (Environmental Compliance)
 - (1) Pretreatment informs WWTP staff and the Biosolids Supervisor of new industries that could affect the treatment system and/or biosolids.
 - (2) Pretreatment informs WWTP staff and the Biosolids Supervisor of industrial problems and high influent samples.
 - (3) Pretreatment informs WWTP staff and the Biosolids Supervisor of changes in metals loading and changes in local limits.
 - B. Operations
 - (1) WWTP staff informs pretreatment of plant problems or upsets that could be caused by industrial discharges.
 - (2) WWTP staff informs the Biosolids Supervisor of any problems or changes regarding quality of digested biosolids, as well as fluctuations in quantity of biosolids generated.
 - (3) WWTP staff informs the Biosolids Supervisor and pretreatment of major maintenance items scheduled, including digester cleaning, clarifier takedowns, or other items that could affect treatment plant operations.
 - C. Biosolids Supervisor
 - (1) Biosolids Supervisor informs WWTP staff and pretreatment of any changes in biosolids quality, including odor, appearance, solids concentrations, or regulated test parameters.
 - (2) Biosolids Supervisor informs WWTP staff of any problems with application sites, (e.g., loss of sites, complaints from the public or farm owners).
7. Internal communication with employees in the biosolids value chain also provides input on the EMS program.
 - A. Communication to biosolids value chain employees includes regular training on the City's current biosolids policy, legal and other regulatory requirements, and on other issues relevant to biosolids. Training is fully addressed in Element 8.
 - B. Biosolids value chain employees receive other biosolids related information at regularly scheduled staff meetings and other means of communication.
 - C. The EMS Team also seeks input from biosolids value chain employees on the biosolids EMS program including the EMS manual, biosolids goals and objectives, and internal audit procedures.
8. The City's biosolids policy will be communicated to value chain staff through presentations at staff meetings, utility review, on signs placed throughout the workplace, and regular Biosolids EMS training. For more information on the City's biosolids policy, see Element 2.
9. To ensure interested parties become familiar with the biosolids policy, it is posted on the City's biosolids website, and included in presentations on the City's biosolids program.
10. The following methods will be used to communicate with interested parties:
 - A. The City's webpage

- B. Tours of the WWTP
 - C. Correspondence with regulatory and state, city, and county officials
 - D. Annual biosolids report to Virginia Department of Environmental Quality and EPA.
 - E. Annual Biosolids Management Program Performance Report (BMPPR)
 - F. Through its relationship with Nutri-Blend (See files: Nutri-Blend Communication Strategy, and Outreach Dates and Protocol)
11. Third-party audit results will be made available to the public primarily through the City's website. A summary as well as the full audit report will be posted on the website as soon as they are made available to the City. The Public Information Manager will provide a press release announcing the availability of the third-party audit results.

EMS Element 10 — Operational Control of Critical Control Points City of Richmond Public Utilities – Wastewater Treatment				
Date of Last Review 7/22/08	Revision 4	Approval Signature Barbara D. Jackson	Revision / Effective Date 12/03/08	Supersedes all previous versions

Purpose

The purpose of this procedure is to ensure that the City systematically establishes, implements, and maintains the necessary operational control procedures, work instructions, and other management controls.

Scope

This procedure applies to all biosolids management activities at critical control points throughout the biosolids value chain.

Responsible Staff

The Biosolids Supervisor, with support from the Utility Plant Superintendents II and I, is responsible for providing the necessary training, guidance, and assistance in identifying; developing, documenting, and implementing needed operational control procedures.

Procedure

1. Based on the identified list of critical control points, the Biosolids EMS Team and appropriate supervisors shall determine those activities, products, and services for which operational control procedures, work instructions, and other management control methods are needed.
2. In collaboration with biosolids value chain staff, the Utility Plant Supervisors shall provide the necessary training and guidance to support the development, implementation, and maintenance of the needed operational control procedures. The operational control procedures shall contain operating criteria (e.g., process specifications and parameters, product characteristics, and SOPs).
3. The Utility Plant Supervisors shall develop, document, and implement the operational control procedures and communicate them to their staff. Biosolids EMS training shall be provided as outlined in Element 8.
4. The Utility Plant Supervisors shall oversee the implementation of operational control procedures in their respective activity areas. This includes ensuring employees in each activity area receive the necessary resources, training, and support services to properly implement the operational controls.
5. Operational controls provide methods and procedures to ensure uniform and efficient management at each critical control point. To show the relationship between operational controls and critical control

points and to streamline documentation of information, Element 10 information is integrated with critical control points in Element 3, Table 3.1.

6. The actual Preventive Maintenance routine is a combination of information from the Manufacturer's O & M Manual and comments and suggestions from the appropriate Trade Supervisor (Mechanical, Electrical & Instrumentation). PM Work Orders are generated, performed and time is recorded. Work Orders are then closed in Mainsaver which provides a permanent record of the maintenance activity. Maybe reference the new Maintenance SOP which documents the process.
7. The Biosolids EMS Team shall periodically review the operational control procedures, which are listed in Element 3, Table 3.1, and work with the Plant Utility Supervisors to revise them according to any changes in the facility's critical control points.

EMS Element 11 — Emergency Preparedness and Response City of Richmond Public Utilities – Wastewater Treatment				
Date of Last Review 7/22/08	Revision 3	Approval Signature Barbara D. Jackson	Revision / Effective Date 7/22/08	Supersedes all previous versions

Purpose

The purpose of this procedure is to develop a plan to prepare for and respond effectively to accidents, spills, weather-related emergency situations, abnormal conditions, and other contingencies for biosolids management activities.

Scope

This procedure is critical to all real and perceived risk emergency situations concerning the biosolids management process.

Responsible Staff

The Biosolids EMS Team and Biosolids Supervisor are responsible for implementing this emergency response procedure as well as ensuring the regular updating of this element.

Procedure

1. A copy of the *Wastewater Treatment Plant Risk Management Plan Program Document* is available in the Utility Plant Superintendent's II office. This plan covers a variety of emergency situations including natural disasters, bomb threats, chemical emergencies and other crises.
2. The EMS Team has developed a procedure for spills in the biosolids value chain up to the chute which is formally reviewed and updated as needed. Interim revisions to specific sections of the SOP are made on an as-needed basis. The Biosolids Supervisor is responsible for coordinating the formal review and update of the SOP. The SOP establishes clear protocol for how a variety of spills should be handled. Copies of the SOP are located in the SOP Manual.
3. Testing and training with respect to safety and emergency response procedures related to biosolids is conducted on a periodic basis as determined by the Biosolids EMS team and/or work group supervisors in accordance with Element 8.
4. Nutri-Blend maintains an Emergency Response Plan to address spills and emergency relevant to their portion of the biosolids value chain management.

EMS Element 12 — EMS Documentation, Document Control, and Record Keeping City of Richmond Public Utilities– Wastewater Treatment				
Date of Last Review 7/22/08	Revision 3	Approval Signature Barbara D. Jackson	Revision / Effective Date 7/22/08	Supersedes all previous versions

Purpose

The purpose of this element is to establish and maintain EMS documentation, documents, and records pertaining to biosolids management activities and to keep up-to-date procedures.

Scope

This procedure covers the Biosolids EMS Manual and all other documents and records pertaining to Richmond's Biosolids program.

Responsibility

The Biosolids Supervisor is responsible for ensuring documents conform to the adopted document control standards as set forth in the Biosolids EMS Manual and this element.

Procedure

1. Unless otherwise noted, all Biosolids EMS documents will be kept in Biosolids Supervisor's office or the City's server.
2. Biosolids EMS documents include the Biosolids EMS Manual and SOPs and other documents referenced herein. These documents are reference documents for daily operations and will be reviewed and updated annually, or as procedures change.

A. Biosolids EMS documents will have the following information at the top of the first page:

- Title, including document number (if any)
- Revision date and initials
- Date of last review and initials

B. All Biosolids EMS documents will be labeled with the correct revision number. The header of these documents may contain other information such as appropriate reference material, equipment needed, or scope at the discretion of the workgroup supervisor.

C. Within the EMS Manual, all tables, charts, graphs, and appendices share the revision number and date of their respective element unless otherwise indicated.

D. Each work group supervisor is responsible for revision of work group SOPs, approval of revised SOPs, and development of new SOPs. Revision of EMS manual procedures and approval

of those revisions is performed by the EMS Team. Once the revisions are accepted by the EMS Team, the Utility Plant Supervisor signs each element to indicate his/her approval.

3. Biosolids records include daily logs, worksheets, forms, and associated reports. These documents are maintained in the Utility Plant Supervisor's office.
4. Retention periods for all documents will, at a minimum, conform to applicable state document retention guidelines under Virginia DEQ.
5. The Biosolids Supervisor is responsible for coordinating reviews and updates to the Biosolids EMS Manual. At least once every three years, all 17 elements in this document will be reviewed and updated if necessary. Certain elements are reviewed and updated more frequently per their specific procedure.
6. Nutri-Blend maintains documents and records pertaining to their role in the Biosolids Management Program including SOPs and land application records. Retention periods for all documents will, at a minimum, conform to applicable state document retention guidelines under Virginia DEQ.

Element 13 — Monitoring and Measurement City of Richmond Public Utilities – Wastewater Treatment				
Date of Last Review 7/22/08	Revision 3	Approval Signature Barbara D. Jackson	Revision / Effective Date 7/22/08	Supersedes all previous versions

Purpose

This element covers the process used to track progress toward goals, objectives, and targets of continual improvement. Element 13 serves the following functions:

1. Ensures compliance with applicable legal and other requirements
2. Measures biosolids program performance at critical control points
3. Tracks progress toward achieving biosolids program goals and objectives per Element 5
4. Measures effectiveness of the Biosolids EMS program

Scope

Element 13 covers all critical control points in the biosolids value chain and documents the effectiveness of CCPs, operational controls, biosolids application, public outreach, and overall EMS efforts.

Responsible Staff

The Biosolids Supervisor, Utility Plant Superintendents II and I, Chief Chemist/Quality Control Officer, and designated staff will be responsible for ensuring that all Biosolids EMS aspects requiring monitoring and measuring are followed and documented.

Procedure

1. The Biosolids EMS team will review progress toward biosolids goals and objectives quarterly. Progress will be monitored using the goals and objectives in Table 5.1 as stated in Element 5.
2. All legally required monitoring and measurements will be conducted at specified intervals to ensure compliance with all Federal and state regulations (See Element 3, Table 3.1).
3. Nonconformance and corrective actions will be documented in accordance with Element 14.
4. The Chief Chemist/Quality Control Officer will annually evaluate performance metrics of contract laboratories used in biosolids compliance testing using results of EPA standards.

5. A key record in monitoring WWTP operations are the log sheets and log books. These logs are used to track data daily throughout the plant.
6. All records in monitoring and measuring results are stored according to the procedures in Element 12.
7. Nutri-Blend monitors monthly to determine their application rates. These reports are sent to VDH on a monthly basis.

EMS Element 14 — Nonconformance: Preventive and Corrective Action City of Richmond Public Utilities – Wastewater Treatment				
Date of Last Review 7/22/08	Revision 3	Approval Signature Barbara D. Jackson	Revision / Effective Date 7/22/08	Supersedes all previous versions

Purpose

The purpose of this EMS element is to develop procedures for identifying, investigating, and taking corrective action(s) for nonconformance.

Scope

This procedure addresses preventive and corrective action(s) to address nonconformance's identified during routine monitoring and measurement, audits, and other inspections.

Responsible Staff

The Biosolids Supervisor, in conjunction with the Environmental Compliance Officer and the Utility Plant Superintendents II and I, will be responsible for addressing and tracking identified nonconformance and corrective actions within the biosolids value chain.

Procedure

This element is an important key to continual improvement. When elements of the environmental management system or biosolids value chain deviate from requirements, it is necessary to determine the cause, change the operating procedures and objectives, change training requirements, and address any environmental impacts that may have occurred as a result of the problem. Nonconformance conditions may be discovered either in the course of day-to-day biosolids management activities or through a systematic EMS audit process.

1. Legal and regulatory noncompliance that affect, or may potentially affect, the biosolids value chain will be dealt with according to the applicable regulatory requirements. Noncompliance will also be considered an EMS nonconformance and processed in the same manner as other nonconformance. Deadlines to meet compliance requirements identified as nonconformance will be strictly enforced. The responsible supervisor must coordinate with the appropriate regulatory agency to request extensions if the supervisor anticipates problems meeting the deadline.
2. Nonconformance identified during routine operations will be addressed using the EMS Corrective Action Form. This form requires a description of the nonconformance including the root cause of the condition, any applicable regulatory or other requirements, proposed corrective actions, and a description of the action taken to correct the nonconformance, among other information. Nonconformance identified during either internal or third-party audits will also be addressed using the EMS Corrective Action Form.

3. The Corrective Action Form will be given to the appropriate supervisor and he/she will assign responsibility to ensure appropriate steps are taken to correct the nonconformance. The corrective action will be reviewed at subsequent meetings of the Biosolids EMS Team until the action is verified and accepted and the nonconformance is closed. Review of the nonconformance includes taking steps to prevent any future recurrence of the same or similar nonconformance, such as identifying the root cause, providing additional training, etc. Any required changes to procedures, training, or other processes that are designed to prevent recurrence will be performed and documented before the nonconformance may be considered closed. Steps taken to prevent recurrence will be documented on the Corrective Action Form. If the deadline for correcting a nonconformance is missed, the Biosolids Supervisor will work with the responsible supervisor to identify any resources required and to resolve the nonconformance as quickly as possible.
4. Nonconformance associated with equipment or machinery will be assigned, documented, and tracked using the Mainsaver™. The appropriate supervisor is responsible for identifying the problem, and will notify the Biosolids Supervisor. The Biosolids Supervisor will be notified with updates on the corrective action until the nonconformance is closed.
5. The Biosolids Supervisor is responsible for verifying the nonconformance has been closed unless the Biosolids Supervisor is the responsible supervisor identified on the Corrective Action Form. In that case, the EMS Team will assign the task of verifying corrective actions to another individual.
6. Once a year, at a minimum, the effectiveness of all preventive and corrective actions taken will be evaluated. This will normally be performed as part of the annual Biosolids Management Program Progress Report process.

EMS Element 15 — Performance Report
City of Richmond Public Utilities – Wastewater Treatment

Date of Last Review 7/22/08	Revision 3	Approval Signature Barbara D. Jackson	Revision / Effective Date 7/22/08	Supersedes all previous versions
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Purpose

The purpose of this EMS element is to describe the process of completing an annual written Biosolids Management Program Performance Report (BMPPR) that summarizes the performance of the Biosolids Management Program and EMS to drive continued improvement.

Scope

The BMPPR shall contain appropriate summaries of monitoring, measurements, and other results demonstrating the performance of the biosolids program relative to its goals, objectives, and legal requirements, including those management activities conducted by the Wastewater Treatment Plant.

Responsible Staff

The Biosolids EMS Team and Biosolids Supervisor are responsible for preparing the BMPPR. The Biosolids Supervisor will ensure information from the report is made available to interested parties.

Procedure

1. The performance of the Biosolids Management Program and EMS will be published in an annual Biosolids Management Program Performance Report (BMPPR) made available to interested parties, the public, and the National Biosolids Partnership no later than April 1 unless an internal or independent third party audit is scheduled during or shortly thereafter. If an audit is scheduled during or shortly after April 1, the BMPPR will be made available as soon as possible to include the summary of the audit as required by section 3 of this element.
2. The report will provide evidence of the commitment to adhere to the Code of Good Practice and the City's biosolids policy, as well as evidence the department is striving to meet all biosolids EMS goals and objectives set out the previous year. The report will also be used as a tool to foster and facilitate communication with the general public.
3. At a minimum, the BMPPR will include progress toward goals and objectives, legal and regulatory compliance, including biosolids activities conducted by Nutri-Blend, and results of internal and/or third-party audits within the last twelve months. The report may include any or all, but not limited to, of the following:
 - A. Significant changes to the Biosolids EMS program

- B. Projection of changes or additions to goals and objectives
 - C. Summary of abnormal or emergency incidents, as well as significant preventive and corrective actions taken
4. The Biosolids Supervisor will ensure information contained in the BMPPR is made available to interested parties by providing copies of the report. In addition, the report will be posted on the City's website.

EMS Element 16 — Internal EMS Audit
City of Richmond Public Utilities – Wastewater Treatment

Date of Last Review 7/22/08	Revision 3	Approval Signature Barbara D. Jackson	Revision / Effective Date 7/22/08	Supersedes all previous versions
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Purpose

The Internal EMS Audit is used to periodically analyze the Biosolids EMS program to determine whether the City is effectively implementing its Biosolids Management Policy, program requirements, and program goals and objectives.

Scope

This procedure applies to the entire biosolids value chain and the EMS.

Responsible Staff

The Biosolids Supervisor is responsible for this element and will designate an internal audit team to conduct the internal audit. The Utility Plant Superintendent II and I, Public Utilities Deputy Director and Utility Plant Supervisors will ensure resources are available to conduct the audit and will review and approve audit results.

Procedure

1. The Biosolids Supervisor will work with the Utility Plant Superintendent II to recruit the internal audit team. The Biosolids value chain staff will be notified of the impending audit prior to the audit start date. Notification will cover the scope, schedule, and other pertinent information.
2. The Biosolids EMS internal audit team will be comprised of two to three individuals from various work groups within the biosolids value chain. One or more audit team members may be from another agency or an independent contractor. No internal audit team member may audit an area over which they have direct control as part of their regularly assigned duties. The internal audit team will designate a lead auditor and identify that person as lead auditor on all audit documents.
3. The internal audit will be conducted according to the current version of the National Biosolids Partnership document *Third Party Verification Auditor Guidance*.
4. The Public Utilities Deputy Director and the Utility Plant Superintendent II and I, shall ensure audit training and resources are provided to internal audit team members. At a minimum, one member of the internal audit team will have received training from either the NBP or another source acceptable to the EMS Team. The remainder of the internal audit team will at the least receive training consisting of review of general auditing techniques provided by a certified auditor or another source acceptable by the EMS team, the NBP, or the internal audit lead auditor.

5. Internal audits must be conducted in years that a third-party audit (either interim or re-verification) is **not** being conducted. Internal audits may also be conducted in addition to a third-party audit if the Biosolids EMS Team feels the additional audit is necessary.
 - A. The audit schedule for years 0 through 5 is as follows:
 - Year 0: Third party verification audit
 - Year 1: Third party interim audit
 - Year 2: Internal interim audit
 - Year 3: Third party interim audit
 - Year 4: Internal interim audit
 - Year 5: Third party re-verification audit
 - B. Internal audits may substitute for third-party interim audits according to the guidelines in the *Third Party Verification Auditor Guidance*. Internal interim audits must review progress toward goals and objectives, EMS outcomes, actions taken to prevent minor nonconformance, the management review process, corrective actions, and preventive action requests. Additionally, internal interim audits will analyze aspects of the program agreed to by the City's EMS representative and the third-party auditor in the interim audit plan.
 - C. All EMS elements must be covered during the four interim audits, either by the third-party auditor or the internal audit team.
 - D. Results of the internal interim audit must be summarized in a report that is made available to the EMS Team, management, interested parties, and the NBP.
6. The specific scope of each internal audit will vary. Each internal audit may examine any or all activities related to the biosolids value chain, however every internal audit must investigate whether the program is conforming to the biosolids policy and program requirements, and whether it is making progress toward goals and objectives. The internal audit team will develop the audit scope based on these required elements as well as:
 - A. The potential environmental impacts of biosolids activities
 - B. Results of previous audits, including third-party audits
 - C. Changes or modifications to processes or procedures
 - D. Changes in requirements stipulated by applicable environmental laws and regulations (local, state, and federal)
7. The internal audit team is responsible for ensuring audit protocols and procedures are in place to focus on the objective evidence relating to the biosolids program. Specific duties include but are not limited to:
 - A. Developing the audit schedule. The specific audit activities will be scheduled with tentative time frames by the internal audit team and given to the Biosolids Supervisor no later than one week prior to the audit. Each internal audit will include an opening meeting with the EMS Team, a schedule for interviews and transaction testing, a summary meeting with the Biosolids Supervisor, and a closing meeting with the EMS Team.

- B. Determining the method for conducting the audit, including assigning audit responsibilities and determining appropriate methods for collecting objective evidence.
 - C. Using standard forms such as checklists, corrective action request forms, audit assessment forms, or developing new forms if necessary. A guide for the internal audit including EMS Manual requirements and associated questions is available on the network.
 - D. Determining how corrective and preventive actions will be verified for effectiveness, in accordance with Element 14.
- 8. Auditors will conduct a closing meeting to discuss identified nonconformance and/or deficiencies with the Biosolids EMS program. At this time, the Biosolids EMS Team may present any final evidence concerning the audit findings.
 - 9. The lead auditor is responsible for writing the internal audit report itemizing all findings and identifying them as major nonconformance, minor nonconformance, or opportunities for improvement. A summary of these findings will be presented in the Biosolids Management Program Performance Report. This report will be posted on the City of Richmond, Dept. of Public Utilities Biosolids Website.
 - 10. The EMS Team will summarize the internal audit results, including the internal audit report, recommended corrective actions, and a schedule for corrective actions. Audit results will be given to the Public Utilities Deputy Director and the Utility Plant Supervisor II for their review and approval.
 - 11. Nonconformance identified in the internal audit will be addressed using procedures in Element 14.
 - 12. The Biosolids Supervisor will ensure internal audit records are maintained on the City's server. These records should include:
 - A. Description of each audit's scope, schedule, protocol and methodology
 - B. Identification of the lead auditor and his/her qualifications
 - C. The Internal Audit Report
 - D. Other records that describe the content and conduct of the internal audit, as necessary

EMS Element 17 — Periodic Management Review of Performance City of Richmond Public Utilities – Wastewater Treatment				
Date of Last Review 7/22/08	Revision 3	Approval Signature Barbara D. Jackson	Revision / Effective Date 7/22/08	Supersedes all previous versions

Purpose

The purpose of this element is to describe how the City will conduct periodic management reviews of the biosolids management program and EMS performance in order to drive continual improvement.

Scope

The Management Review will discuss the possible need to change policy, goals and objectives, biosolids management program, and other Biosolids EMS elements based on internal EMS audit results, external verification of EMS audits by third parties, changing circumstances, and the commitment to continual improvement.

Responsible Staff

The Biosolids Supervisor and Biosolids EMS Team will be responsible for compiling information for the periodic review of the biosolids management program and EMS. The Deputy Director and Utility Plant Superintendents II and I will conduct the review.

Procedure

1. The Biosolids Supervisor and the Biosolids EMS Team will compile information from the following sources:
 - A. Annual Biosolids Report to DEQ
 - B. Biosolids Management Program Report
 - C. Audit Summaries (internal and/or third party)
 - D. Quarterly Summary Reports (internal and/or NBP)
 - E. Corrective Action Work Orders
 - F. Regulatory Updates
 - G. Input from Interested Parties

2. This information will be summarized in memorandum form and will also include recommended improvements to the Biosolids Management Program.
3. The Biosolids Supervisor will schedule and conduct a Management Review meeting yearly basis.. The Superintendent II and I and Biosolids Supervisor will be responsible for review of the information as well as any changes in the EMS program.
4. The Biosolids Supervisor will prepare a written summary of the management review meeting. Any actions or recommendations from the management review meeting will be documented. The written summary will be provided to the Biosolids EMS Team.

City of Richmond DPU Wastewater Treatment Plant

Verification	Originator	Revised	Approved	Issued
Initials	ELW		CW	5/08

EMS - Nonconformity, Corrective and Preventive Action (Draft Copy)

EP 4.5.3-1FA Corrective Action Request (CAR)

DEPARTMENT:	
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CAR REPORT #:	
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(Section A. - B. to be completed by Originator)

A. Audit Area Location:			
B. Description of Issue:		Nonconformance: <input type="checkbox"/>	Opportunity for Improvement: <input type="checkbox"/>
ISO Element Reference:			
Issued to Area Rep.:		Originator:	
Date:		Date:	

(Section C. - E. to be completed by EMS Team or Area Representative)

C. Root Cause Description:			
D. Short Term Corrective Action:			
Target Date:		Project Manager:	
E. Long Term Preventive Action:			
Target Date:		Project Manager:	

(Section F. to be completed and signed by the EMS Management Representative and the core EMS Team)

F. Verification:			
Date of Completion:			
EMS Team Member:		EMS Man. Rep.	
Signature:		Signature:	
Date:		Date:	

References

City of Richmond Annual Pretreatment Reports
DES Env-W's 800
40 CFR 403
40 CFR 503
NBP EMS Elements of Environmental Management System for Biosolids
NBP National Manual of Good Practice
NBP Third Party Verification Auditor's Guidance